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ABSTRACT

This K-6 interdisciplinary nutrition curriculum focuses on vegetables and fruits. The lessons use core subjects to promote consumption of fresh, frozen, and canned vegetables and fruits; vegetable and fruit juices; and dried fruits. The lessons also investigate the Food Guide Pyramid. Each lesson plan has a section entitled Extensions. The Extensions are springboards to enhance the lessons. There are units for grades K-1, 2-3, and 4-6. The K-1 unit focuses on learning about eating five fruits and vegetables each day. It also discusses germs, how vegetables and fruits grow, and fiber. An appendix offers vegetable and fruit sorting cards, a resource list, and an index for K-6 curriculum. The grade 2-3 unit teaches more about the food pyramid, with lessons that focus on building pyramids, moving from farm to food, milk, fats, oils, and sweets. An appendix presents Food Guide Pyramid sorting cards, food group lists, a resource list for K-6 curriculum, and an index for K-6 curriculum. The grade 4-6 unit focuses on food and energy, offering lessons about calories, sugar, energy, fat, and making smart energy choices. An appendix presents food group lists, a resource list for K-6 curriculum, and an index for K-6 curriculum. (SM)

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An Interdisciplinary Nutrition Curriculum
K - 6

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1996.
Funded by a grant from USDA, NET Program.

“5 A DAY”
KINDERGARTEN - GRADE 1

LESSONS 1-10

every day
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An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

For more information on this curriculum write or call:

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An Interdisciplinary Nutrition Curriculum for Kindergarten - Sixth Grade

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Lesson	Title and Curriculum Connection	Nutrition Overview
1	Good-bye, Dirt and Germs! (Health)	It is important that young children learn and practice habits that are beneficial to their health. In this lesson, students will learn the importance of washing hands and fresh vegetables and fruits prior to consumption.
2	A Handy Rule (Language Arts)	"Five a Day" is an important guide for healthful eating. As students learn this "handy rule" they will be introduced to vegetables and fruits as sources of vitamins A and C, as well as fiber.
3	Winning Combinations (Mathematics)	The "Five a Day - For Better Health" national campaign encourages Americans to consume at least five vegetables and fruits a day. The recommended combination of five is three vegetables and two fruits.
4	They Start a Garden (Language Arts/Science)	Vegetables are an important food group for good health but may not rank among students' favorite foods. Growing vegetables, however, might increase students' interest in this part of their diet.
5	Fabulous Fiber (Science)	Most adults know fiber is in foods, but seldom do we consider its "fabulous" health benefits. Students will observe fiber in plant parts and become familiar with some "fabulous" fiber foods.
6	Mystery Fruit Forms (Science)	Children are encouraged to eat a minimum of two servings of fruit a day. Fortunately, there are many ways to reach this goal because fruit comes in a variety of forms.

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Lesson	Title and Curriculum Connection	Nutrition Overview
7	Ripe and Ready to Eat! (Science)	Students will learn the difference between underripe, ripe, and overripe fruits. They will determine that fruits should be ripe when eaten.
8	Ms. Spaghetti Sauce, Let's Look at Your Life (Social Studies)	It is important for consumers of all ages to understand that foods we eat may go through many processes before they get to our table. Great costs are involved in transporting fresh foods from coast to coast. High costs may influence our food choices more than we think.
9	Matching and Graphing Vegetables and Fruits (Language Arts)	Once a food has been processed, it can be difficult to trace it back to its original form. Students may be better able to meet their "5 A Day" if they understand that processed vegetables and fruits also count.
10	A to Z is Good For ________! (Language Arts)	The alphabet can be used as a tool to illustrate the variety of vegetables and fruits. Vegetables and fruits can be named for almost all of the letters in the alphabet.
11	Pyramid Puzzle (Health/Mathematics)	The Food Guide Pyramid was designed as a guide to daily food choices for all Americans. It is important to understand that all the groups in the Food Guide Pyramid are essential for good health.
12	Building Pyramids (Mathematics/Art)	It is important to distinguish between the base and the top of the Food Guide Pyramid. The differences in shape and size are associated with the recommended servings of each food group. Students will realize that the base of any pyramid, especially the Food Guide Pyramid, is its foundation.

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Lesson	Title and Curriculum Connection	Nutrition Overview
13	From Farm to Food (Social Studies)	By the time food reaches our kitchens, many products bear little resemblance to their original form. Students will trace a processed food product back to an original source to re-establish that connection and understand its placement in the Food Guide Pyramid.
14	Grubbing for Grains (Language Arts/Science)	Grubbing for grains may sound messy but it isn't. Students will not sift through grains, but they will sift through information on product food labels to identify the grain used in the production of the food item.
15	Be Adventurous (Language Arts)	Children typically enjoy fruits more than vegetables. However, by discovering the wide variety of vegetables and different preparation methods, children may increase their vegetable consumption.
16	Is it Fruit? (Language Arts/Mathematics)	Some manufacturers recognize the appeal of the word "fruit" to sell a product. Through closer inspection of the product through the label information, the students will determine whether the item should be categorized as a fruit.
17	Milk Mysteries (Science)	Many people place all dairy products in the Milk, Yogurt, and Cheese food group. However, some of these products belong in the tip of the pyramid because they are primarily made from cream, and/or they do not have a high enough calcium content.

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Nutrition Overviews

Lesson	Title and Curriculum Connection	Nutrition Overview
18	My Pet Fish Drives Everyone Nuts (Language Arts)	The Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group has a diverse number of food origins. Many children (and adults) forget all of the foods that go into this group. Using a mnemonic sentence can help all of us remember them.
19	Thirst Quenchers (Health)	There are a variety of beverage choices in the Food Guide Pyramid. Because of the differing nutrient contents of these drinks, some belong in the major food groups, whereas others belong in the tip of the pyramid.
20	F.O.S. (Language Arts)	Fats, oils, and sweets may be ingredients in some of the foods we enjoy, but when those ingredients appear first by weight on a food label, we should consume the food items sparingly. Students need to become comfortable applying the term "sparingly" to their own food choices.
21	Reach for the Stars! (Health/Mathematics)	The determination of food consumption is valuable when concerned about one's diet. Food records reveal important information regarding eating patterns and food consumption. It is important to determine how much of each food group is consumed in order to evaluate if nutrient needs have been met.
22	Sorting Mat (Mathematics/Health)	To be able to plan for healthy eating, it is important to categorize food items. Determination and acknowledgment of serving sizes of these foods is equally important.

Lesson	Title and Curriculum Connection	Nutrition Overview
23	Headline News Energizes the U.S. Food Guide Pyramid is Introduced (Lang.Arts/S.S./Health)	Many people do not view nutrition as "news." However, it is a subject we continue to learn about and new findings in nutrition are newsworthy events.
24	The Sugar Factory (Science/Art)	Photosynthesis, although not taught in depth, plays an important role in our food production.
25	Pennsylvania's Energy Contributions N.E.W.S. (North, East, West and South) (Social Studies)	The students will learn that some commonly consumed foods are locally grown or produced. Students will appreciate the role of their community in producing foods for healthy diets.
26	What are Calories? (Science)	Many Americans count calories everyday. In this lesson, students will learn that calories are a measure of energy. Prior to presenting this lesson to your class, do the experiment yourself to verify the results. (burning a peanut)
27	Calculating Calories (Mathematics)	Americans have started reading food labels to aid them in making informed choices. Students will learn how to read food labels and understand the information given.
28	Energy Bolts! (Health/Mathematics)	This activity will explore the recommended number of servings on the Food Guide Pyramid. The information will enable students to determine if they have met their daily requirements.
29	Sparingly (Language Arts/Health)	Many people enjoy foods that have little nutritional value. Although these foods need not be eliminated from the diet, the USDA encourages us to consume them sparingly.

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Lesson	Title and Curriculum Connection	Nutrition Overview
30	Where's the Fat? (Mathematics)	Within each food group, we have choices. Not all foods in each food group have the same nutrient composition. For example, foods that are processed can have a higher fat content than might be expected.
31	The Cake Baking Experiment (Science/Health)	The results of this cake testing experiment might surprise you! Offer students a glass of prune juice and they will decline. As a substitute for oil in cake mix, their taste buds may be tricked.
32	Pyramid Power (Mathematics)	There are calorie recommendations for different age levels. The nutrients that comprise those calories deserve careful consideration.
33	Energy Output Survey (Health/Physical Education)	We all know exercise is part of a healthy lifestyle. Tracking and evaluating energy output is the focus of this lesson.
34	On Your Own: Making Smart Energy Choices (Health/Mathematics)	Planning nutritious breakfasts and snacks can help all of us. In this lesson, students will gather nutrition information and make food choices based on this information.
35	EVERYBody A GREAT Body! (Health/Social Studies)	Students will learn that focusing on overall well-being and creative individuality is more healthful than trying to achieve the unrealistic "ideal" body that is often promoted by the media.

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"5 A DAY" THEMATIC UNIT
KINDERGARTEN AND GRADE 1

UNIT SYMBOL DESCRIPTIONS

Nutrition Overview: Brief statement summarizing the nutrition message.

Objectives: Teaching techniques used to communicate the material.

Materials: List of the supplies needed to conduct the lesson.

Information for Teachers: Background information about the topic.

Steps to Follow: Lesson sequence step by step.

Extensions: Springboards to enhance the lessons.

ask Student Interaction: Prompt for teachers indicating that students are to be asked a question.

ALLERGY CAUTION! Be mindful: Keep your list handy of students with food allergies when considering taste tests in the classroom.

● This symbol in the upper corner of each page signifies that the lesson is from the Kindergarten and First Grade unit, "5 A Day".

FOOD SERVICE AND NURSE EXTENSIONS

These extensions have been combined together in one section so that the Food Service Director and the School Nurse can plan in advance to visit the classroom at the time the lesson is taught. A list of activities for each of these extensions begins on page xv of this unit.

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BACKGROUND OF "5 A DAY" THEME

"5 A Day - for Better Health!" is a health campaign of the National Cancer Institute and the Produce for Better Health Foundation. It is designed to help Americans increase daily vegetable and fruit intake to five or more servings. It is the first national program to focus on the positive role of vegetables and fruits in reducing the risk of cancer and other chronic diseases such as heart disease.

Overall, Americans consume two to three servings of vegetables and fruits daily. We hope that by introducing "5 A Day," vegetable and fruit consumption may increase; children may develop eating habits that include vegetables and fruits; and children may influence the family's decision to buy more vegetables and fruits.

GOAL/OBJECTIVE OF CURRICULUM UNIT

This level of the K-6 interdisciplinary curriculum focuses on vegetables and fruits. The lessons use core subjects to promote fresh, frozen, and canned vegetables and fruits; vegetable and fruit juices and dried fruits. A list of vegetables and fruits is given in this unit to help you emphasize the wide variety of vegetables and fruits available in the supermarket. Some may be common to your area, others may be new to both you and your students. Trying new foods can be fun and can help meet the goal of "5 A Day."

The other units in this curriculum investigate the Food Guide Pyramid. Grades 2 and 3 learn about the five food groups of the Food Guide Pyramid, excluding the tip. Grades 4 through 6 focus on all of the food groups, primarily the tip.

SCIENTIFIC CAUTION

"Every Day Lots of Ways" integrates various teaching techniques to reinforce concepts students learn. One way is through scientific experimentation. Safety should be a major consideration for both students and teachers. Prior to beginning any experiment, please discuss the issue of safety with your students and clarify what you expect of them. Explain to students that when safety guidelines are not adhered to, people may be harmed. Be prepared for the experiment, make sure all equipment and ingredients are labeled so that students are aware of what the substances are. Have boundaries drawn or clearly mark where students are and are not allowed to be. When working with any experimental substance, teachers and students should wear protective eye gear. Instruct students on the following: keep chemicals (and other substances) off clothes, if they come in contact with chemicals rinse with water, wipe up any spills immediately, and wash hands before and after each activity. Remind students that we never taste chemicals or inhale them. Check with your school's science coordinator and/or administrator about the use of chemicals and a flame in the classroom prior to conducting the experiments.

EXTENSIONS WITHIN EACH LESSON

Each lesson plan has a section entitled Extensions. The Extensions are springboards to enhance the lessons. They are one way to set kindergarten apart from first grade. Therefore, you may find it helpful to meet with all the teachers as a team and decide what concepts will be introduced to which grade levels, etc. We have recommended extensions in some lessons. Use your own creativity to add to them and modify. The following is an explanation of the Extensions:

Not all the extension topics are listed for each lesson. You may think of some new extensions to add. It is your ideas and flexible extensions that will enhance the concepts to make them relevant to the student. We encourage you to have fun and try one, some, or all of the extensions.

ACT IT OUT

These are suggestions for dramatic play.

BULLETIN BOARD IDEAS

Here we give ideas to create bulletin boards that will enhance the unit. In the unit there may be more than one idea listed for each lesson. It is up to you to choose the bulletin board idea that will emphasize the concept you believe is important to you for this unit.

CAREERS

In this section we have simply named occupations which relate to concepts taught in the lesson. You may want to mention this to your students at the time of the lesson or use this information when you discuss community helpers or jobs that relate to our health and well-being.

CLASS PROJECT

Again, this is a springboard idea. You cannot do all the class projects; however, one may work better for one class or grade than another. This is a good opportunity to network with the teachers in your grade or primary team.

FOOD SERVICE COOPERATION

The food service is often referred to as the nutrition laboratory of the school. Food Service Directors can be a wealth of information and can help illustrate that the school lunch and breakfast programs are designed to enhance each student's health.

FURTHER INVESTIGATION

This extension allows you to link subjects. When the students see how they link together, it makes for a more meaningful experience.

INVITE THE NURSE

Many nurses enjoy the opportunity to visit the classroom and support the health programs. By using these ideas, you can come up with ways to include the nurse so the students recognize the contribution of the nurse to the school team.

I THINK I CAN, I KNEW I COULD

This is the opportunity your students have to apply the nutrition concepts to their own lives. It is a time to assess behavior, set goals for small changes, assess successes or setbacks, and praise accomplishments. This can be very personal; you may want to do this individually vs. a large group setting.

TAKING IT HOME

This is a time to involve the family or at least one family member in the child's learning. Many teachers say nutrition starts at home. This section gives ideas for ways you can get parents or guardians thinking about food choices and listening to and supporting what your students are learning in school.

TASTE TEST

A few bites of food can communicate more than words. Food for taste tests may be obtained from parents, school food service or donated by local grocers.

RESOURCES

Books, videos and other resources intended to complement lessons. The list of books can be used to select a book to read at story time or to purchase for your library shelf. You'll want to be sure to share the list with your school librarian.

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MATERIALS LIST
UNIT K-1

GENERAL MATERIALS USED IN THE LESSONS:

- Taste Test permission slip (completed prior to taste testing activities)
- pencils
- paper
- glue, tape, or staples
- Food Guide Pyramid poster (to obtain see Resource List)

WORKSHEETS SPECIFIC TO EACH LESSON:

Worksheets and answer keys where applicable are located at the end of each lesson.

LESSON 1: GOOD-BYE, DIRT AND GERMS

- "Good-bye to Things I've Never Seen" written on a flip chart
- sink area or bucket
- soap and water
- paper towels
- vegetables and fruits to wash
- scrub brush
- (optional) I Washed My Hands Today! worksheet

LESSON 2: A HANDY RULE

- Chart paper with "A Handy Rule" written out
- Letter to parents photocopied onto your school's letterhead stationary
- Did You Get Your 5 Today? worksheet
- "5 A Day" videotape (included with curriculum)
- sorting cards - two sets for every group of 3-4 students (appendix A)

LESSON 3: WINNING COMBINATIONS

- 4 vegetable sorting cards (appendix A)
- 4 fruit sorting cards (appendix A)
- Winning Combinations worksheet
- shopping bags – one bag for each pair of students
- 3 vegetables and 2 fruits per bag
- Graphing Vegetables and Fruits worksheet
- Food Guide Pyramid Poster

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LESSON 4: THEY START IN A GARDEN

- Growing Vegetable Soup by Lois Ehlert (included with curriculum)
- package of vegetable seeds (dwarf lettuce)
- potting soil
- several large pots
- several rocks per pot to facilitate water drainage
- underdish
- water
- newspaper
- (optional) Growing Your Own Sprouts experiment

LESSON 5: FABULOUS FIBER

- sample of vegetable fiber (fresh celery or spaghetti squash)
- knife

(optional)

- hand lens
- sorting cards of high/good sources of fiber (appendix A)
- fresh fruit samples: banana, orange or pear
- Fiber worksheet (art extension)

LESSON 6: MYSTERY FRUIT FORMS

- Mystery box
- wrapping paper
- fruit:
  - fresh fruit
  - fruit juice
  - canned fruit
  - dried fruit
  - frozen fruit package

LESSON 7: RIPE AND READY TO EAT!

- Ripe and Ready to Eat worksheet
- under-ripe (green) banana
- ripe (yellow) banana
- overripe (brown) banana
- plastic knife
- paper towels

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LESSON 8: MS. SPAGHETTI SAUCE, LET'S LOOK AT YOUR LIFE

- labels from spaghetti sauce
- a tomato sorting card (appendix A)
- a fresh tomato or food model
- occupational graphic sheets

(optional)

- map of the United States
- map of your home state
- transportation props
- hats with labels identifying occupation

LESSON 9: MATCHING AND GRAPHING VEGETABLES AND FRUITS

- vegetable and fruit sorting cards - one set of five per group (appendix A)
- empty packages of processed vegetable and fruit products to match sorting cards
- shopping bags - one per group filled with sorting cards and food packages

LESSON 10: A TO Z IS GOOD FOR ________________!

- "A to Z is Good for _____" books
- crayons
- pencils
- "5 A Day is Easy to Do", alphabetized list of vegetables and fruits

LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
1	Invite the Food Service Director to class to discuss hygiene in the food service operation. Introduce the steps that are taken to insure a clean and safe school breakfast and lunch program.	Ask the nurse to visit class when you talk about hygiene. The importance of clean hands before eating should be emphasized.
2	Invite the Food Service Director to visit the class and assist the student in identifying which foods commonly served on the school lunch menu are high sources of vitamins A and C, and high or good sources of fiber. Your Food Service Director may have received promotional materials on "5 a Day." Meet to discuss what your class can do to learn more and promote the national program.	Ask the nurse to discuss wound healing and the proper care for sores. Emphasize that a healthy diet with vegetables and fruits high in vitamin C helps wounds mend. Ask the nurse to recommend an ophthalmologist who will visit your class to discuss proper care for the eyes. Emphasize that a healthy diet with vegetables and fruits high in vitamin A help us maintain good vision and adapt to light changes. Most children are familiar with going in and out of movie theaters and the time necessary to adjust to the light. Examples such as this make the role of this vitamin seem real. (Be sure the children understand some time is necessary to make the adaptation from bright to dim light and vice versa.)
3	Take a tour of the school cafeteria. List names of vegetables and fruits seen. Have a taste test of vegetables and fruits served in the cafeteria. Ask the Food Service Director to come into the classroom to introduce some unusual vegetables and fruits. Ask the students to distinguish some differences between the vegetables and fruits (sweetness or where it appears in the meal; for e.g.., fruit for dessert and vegetables as a side dish or as a main dish like stir-fry).	

LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
4		If you live in a rural area or one that has a considerable number of families with gardens, you may want to invite the nurse to discuss garden safety with your students. Pesticides, chemical fertilizers, cutting tools, and pressure-treated wood present dangers to children. Any metal tool can be dangerous when it is left lying around or is not being used properly. Recommend that the nurse discuss safety features as well as the health benefits from gardening and eating vegetables.
5	Ask the Food Service Director to lead the class in identifying high or good sources of fiber on the school lunch menu (see list in Lesson 2). Which vegetables and fruits are the class favorites?	
6	Have the Food Service Director come into the classroom and talk about the way fruits are bought for the school. Does your school district buy more fresh, frozen, canned, juiced, or dried fruits and why? Have him/her explain perishable and the advantages and and disadvantages of the forms. Have the Food Service Director read the school lunch menu for the week (do it day-by-day) item-by-item. If the Food Service Director says a word that is a fruit, the students should raise their hands. Then have the students say the form it is in (canned, fresh, dried, etc.)	
7	Ask the food service to prepare something special made from bananas such as bread or muffins to put on the breakfast or lunch menu.	
8	Using a map, ask the Food Service Director to label the locations of some of the vendors that supply food for your district. Illustrate the fact that foods we eat come from places both far and near. Transportation and communication are major factors in getting food to your school	

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LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
8 (con't)	cafeteria. Ask the Food Service Director to share the steps necessary to get food (especially vegetables and fruits) to the student's meal.	
10	Ask the Food Service Director to talk to the class about how the school serves "ABC" vegetables and fruits. For example, apples can be served fresh, as applesauce, as juice, etc.	

THE FOOD GUIDE PYRAMID & THE DIETARY GUIDELINES

Since 1916 the U.S. government has designed food guides to help Americans make healthful food choices. Early guides were developed to prevent nutrient deficiencies, but today, nutrient deficiencies are less of a problem. Instead, many Americans suffer from health problems such as obesity, heart disease, and certain cancers, which result from an excess of food or imbalance of food choices.

In the early 1980's The Dietary Guidelines for Americans were written to give guidelines to help prevent these chronic diseases. In 1992 The Food Guide Pyramid was approved to augment four (marked with an *) of the Dietary Guidelines in the promotion of healthy eating to reduce the risk of diet-related diseases. (The United States Department of Agriculture ammended the guidelines in 1995.)

THE DIETARY GUIDELINES INCLUDE:

- Balance the food you eat with physical activity-maintain or improve your weight.
- Choose a diet with plenty of grain products, vegetables, and fruits. *
- Choose a diet low in fat, saturated fat, and cholesterol. *
- Eat a variety of foods. *
- Choose a diet moderate in salt and sodium.
- Choose a diet moderate in sugars. *
- If you drink alcoholic beverages, do so in moderation.

The Food Guide Pyramid's primary function is to illustrate four key dietary guidelines (*), and more specifically, to provide a memorable image of variety, moderation and proportionality.

FOOD GUIDE PYRAMID: THREE MAJOR CONCEPTS

VARIETY

Variety refers to eating foods from all the food groups as well as choosing different foods within each group. The primary focus is on the names of the food groups and the foods within the groups. The underlying message is that no one food or food group is more important than another.

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Foods are grouped by the nutrients they provide and their common use in meals. Eating foods from all the food groups provides needed amounts of nutrients for a healthful diet while providing a minimum of calories from fats, oils and sugars. Foods with added fats and sugars are high in calories with few vitamins and minerals and therefore are to be used sparingly.

PROPORTIONALITY

Proportionality means eating relative amounts of food from all the food groups. The basic premise is that different food groups have different numbers of servings recommended. Each food group has a range of recommended servings. Ranges are given because of individual variations in the need for calories and nutrients due to differences in body size, age, sex, activity level, and individual needs. The usefulness of fat and sugars depends on an individual's calorie needs.

Some children see the pyramid and because of the food group size think Breads, Cereals, Rice, and Pasta are suddenly the most important food group. Therefore you must emphasize that the number of servings does not reflect importance; all food groups are equally important.

MODERATION

Moderation is closely related to the concept of balance. It refers to eating foods in recommended serving sizes and eating fats, oils, and sweets sparingly. All the five major food groups are important and desirable; however, limiting intake of fats, oils and sugars is also important for a healthy diet.

The Food Guide Pyramid graphic does not define a serving size. This is a concern to many people when they look at the graphic and see the number of servings. The first reaction is "too much food!" However, once a serving size is seen and understood it becomes more clear that these serving recommendations are not difficult to achieve. Serving sizes for the Food Guide Pyramid are different from those on food labels. It is best just to follow those sizes designed by USDA when teaching from the Food Guide Pyramid. Also, "sparingly" is a concept, not an absolute measure. Since your students can't measure sparingly they'll need to develop an understanding of the word in context to the total diet.

Teaching moderation also includes knowing the food sources of fat and added sugar and eating them sparingly. The pyramid illustrates how foods with fat and added sugar are distributed across all the major food groups and how food choices should be modified within all the major food groups to decrease the total amount of fat and sugar intake. Therefore children need help learning to make comparisons of foods within food groups.

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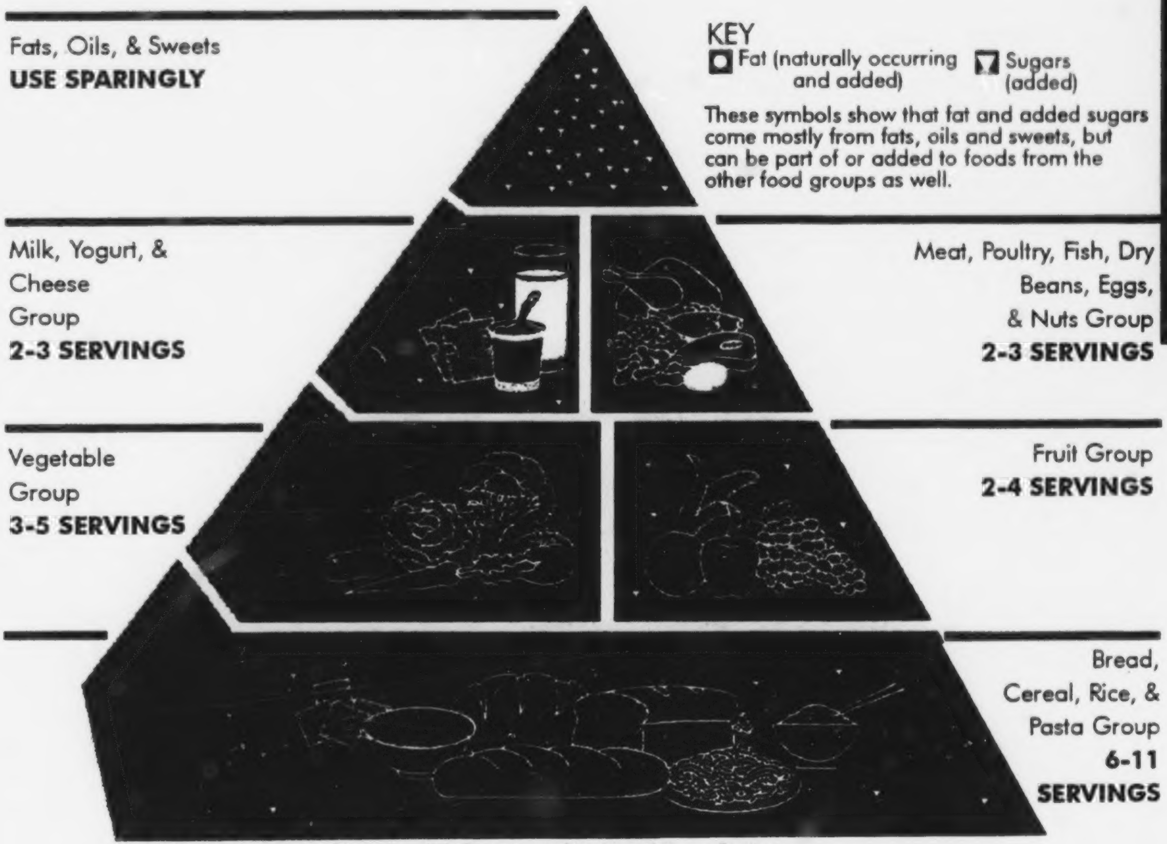
FOOD GUIDE PYRAMID

A GUIDE TO DAILY FOOD CHOICES


Fats, Oils, & Sweets
USE SPARINGLY
Milk, Yogurt, & Cheese Group
2-3 SERVINGS
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS
Vegetable Group
3-5 SERVINGS
Fruit Group
2-4 SERVINGS
Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS

KEY
● Fat (naturally occurring and added) ▼ Sugars (added)

These symbols show that fat and added sugars come mostly from fats, oils and sweets, but can be part of or added to foods from the other food groups as well.

SOURCE: U.S. Department of Agriculture/U.S. Department of Health and Human Services

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KEY CHANGES FROM THE BASIC FOUR TO THE FOOD GUIDE PYRAMID

- The move from the Basic Four to the Food Guide Pyramid focuses on the prevention of nutrition-related disease versus the goal of (the Basic Four) avoiding nutrient deficiencies.

- The Food Guide Pyramid addresses total calorie needs of people. The Basic Four was just the minimum number of servings needed in a day to prevent deficiencies.

- The number of food groups has changed from four, or four plus an "other", to five major food groups plus the tip.

- The names of food groups have changed from:

Basic Four		Food Guide Pyramid
Bread, Cereals and Grains	to	Breads, Cereals, Rice, and Pasta
Fruits and Vegetables	to	Vegetable group Fruit group
Milk and Milk Products	to	Milk, Yogurt and Cheese
Meat and Meat Alternatives	to	Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts
"Others"		eliminated Fats, Oils, and Sweets added.

- The number of servings has increased to meet total calorie needs.

	Number of Recommended Servings	
Food Group	***Basic 4***	***Food Guide Pyramid***
Breads, Cereals, Rice, & Pasta	4	6 to 11
Fruit and Vegetables	4	3 to 5 vegetables 2 to 4 fruits
Milk	2	2 to 3
Meat	2	2 to 3

- The number of servings has changed from a specific number to a range to reflect individual needs and differences.

- A new group has been introduced named Fats, Oils and Sweets; it is not a substitute for the former "Others" group and it does not include food products such as cake, cookies, French fries. It does include candies and beverages such as cola.

- The Food Guide Pyramid has shifted away from using words like "caution" and "avoid" for such ingredients and beverages to a more positive statement, "use sparingly."

- Cheese and cottage cheese are no longer meat substitutes.

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- The serving size of ready-to-eat cereal has been changed from one cup to one ounce. The serving size of fruit and vegetable juice has been changed from 1/2 cup to 3/4 cup.

PYRAMID TEACHING TIPS

- To introduce the pyramid, we recommend that you start at the bottom and move up to the tip. Also, start with simple foods, then combination foods, and later add foods with added fat and sugars.

- Note that vegetables appear first from left to right. In common language, we are used to saying "fruits and vegetables." This may be difficult to override without conscious effort. You'll need to focus on trying to say vegetables and fruits.

- It may be useful to introduce the pyramid without the sugar and fat symbols; add them after they understand the basic food groups.

- Emphasize that all food groups work together; no one food group is more important than another.

- Emphasize that the number of servings does not reflect importance; all food groups are equally important. Youngsters especially tend to mistake Breads, Cereals, Rice and Pasta as the most important food group because it is the biggest group on the pyramid.

- One easy way to remember what does and does not go into the tip of the pyramid is to relate the tip to ingredients. Usually we consume foods found in the tip in combination with other ingredients, not by themselves. The ingredients found in the tip, however, offer more energy and less nutrient value than the foods found in the other major food groups.

- The pyramid reflects recommendations to eat more complex carbohydrates and less fat and refined sugars. This would be easy if we ate all our foods in a simple, minimally processed form. Instead, we eat many processed foods like apple pie, French fries, potato chips, fried chicken, and chicken burritos instead of raw or steamed vegetables and fruits or chicken baked without the skin. Our food supply is plentiful in fat and added sugar. The Food Guide Pyramid is designed to help consumers recognize that fat and added sugar can appear in each major food group, depending on the food choices made. It also helps us recognize that some fat and added sugar in moderation is acceptable, but a diet with too many foods with fat and added sugar may lead to excess calories and a greater risk for chronic diseases.

THE BOTTOM HALF OF THE PYRAMID

The three major food groups in the bottom and widest part of the pyramid are made up of foods that originate from plants, have very little fat, and are high in complex carbohydrates. Vitamins, minerals, and water are other essential nutrients in these foods. The Dietary Guidelines for Americans suggest we choose a diet with plenty of vegetables, fruits, and grain products. Eating the recommended number of servings from these three food groups is the foundation of a healthful diet.

Even though these foods begin with little fat, food manufacturers process them; therefore the marketplace is filled with high fat breads like donuts, cakes, cookies, pie crusts and pastries. Fried vegetables are often popular with children. Many fruits are eaten canned in heavy sugar or baked in pies. Processing with added fat and refined sugar changes the energy value and nutrient quality of these food groups. The foods with fat and added sugar in these three food groups should be used sparingly.

THE TOP HALF OF THE PYRAMID

The foods in the two major food groups in the upper half of the pyramid are from animal sources, with the exception of dry beans and nuts. These foods are high in protein and provide essential fat. Beans are a naturally low fat "meat" choice. They have protein and mineral quality closer to meat than to grains or vegetables. Beans, like all plants, have no cholesterol and few saturated fats. Nuts do not contain cholesterol but have fat.

Milk has carbohydrate but meat does not. Carbohydrate and fat provide the body with energy but do not function in cell building the way protein does. In fact, it is so important to use the protein for growth and maintenance of cells that we must eat enough carbohydrate and fat to spare protein for its major job.

Fat is an essential nutrient. Fat is in both the Milk and Meat groups. However, there are high fat and low fat choices within each of these groups. Skim milk and 1% low fat milk products are the low fat choices in the Milk group. Whole milk products like hard cheeses, ice cream, and whole milk yogurts offer more fat. In the Meat group, lower fat choices include lean cuts of beef and pork, fish, dry beans, the white meat in poultry, and poultry without skin. Our food supply contains many foods high in fat. If foods are not chosen with some thought, the result can be more fat than is necessary. Excess calories from carbohydrate, protein, or fat are stored in the body as fat, and over time can increase one's risk of diseases such as heart disease and some types of cancer.

The tip of the pyramid designates a small area for the fat and sugar in the diet. There is no recommendation for the number of servings. Instead the concept of "sparingly" must be taught. Examples of fats and oils are salad dressings, mayonnaise, cooking oils, butter, and margarine. These foods offer energy with little nutrient value. Sugars such as refined sugar, honey, jelly and jams, corn syrup, candy, soft drinks, and fruit punches offer carbohydrate with little or no nutrient value. Basically, the foods in the tip offer energy with few vitamins and minerals.

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THE NEW FOOD LABEL

- Nutrition information will be virtually universal in the marketplace; almost every food will carry it.
- The information will be up-to-date with the dietary needs of Americans in the 1990s.
- Labels will show how each food fits into an overall healthy diet, nutrient by nutrient.
- Credibility will be restored to marketing claims such as "light," "fat-free," low-calorie," and "high-fiber."

New heading signals a new label. →

More consistent serving sizes, in both household and metric measures, replace those that used to be set by manufacturers. →

New mandatory component helps consumers meet dietary guidelines recommending no more than 30 percent of calories from fat. ←

Nutrients required on nutrition panel are those most important to the health of today's consumerers, most of whom need to worry about getting too much of certain items (fat, for example), rather than too few vitamins or minerals, as in the past. →

%Daily Value shows how a food fits into the overall daily diet. ←

Reference values help consumers learn good diet basics. They can be adjusted, depending on a person's calorie needs. ←

Conversion guide helps consumers learn caloric value of the energy-producing nutrients. →

Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 260 Calories from Fat 120

	% Daily Value*
Total Fat 13g	**20%**
Saturated Fat 5g	**25%**
Cholesterol 30mg	**10%**
Sodium 660mg	**28%**
Total Carbohydrate 31g	**10%**
Dietary Fiber 0g	**0%**
Sugars 5g	
Protein 5g	

Vitamin A 4% • Vitamin C 2%
Calcium 15% • Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Source: The FDA Consumer, May 1993

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Dear Parent or Guardian:

"Every Day Lots of Ways" is a nutrition curriculum your child will be taught in the near future. To help reinforce concepts taught in the classroom, students are encouraged to actively participate in the lessons through various extensions. These extensions include activities in language arts, mathematics, science, social studies, physical education and computer technology; students will also have opportunities to participate in taste tests, dramatic play, and home-based investigations. Some extensions call for tasting food which may be new and different to your child (i.e. whole grains, uncommon vegetables and fruits). Therefore, it is important to know if your child has any food allergies or intolerences that will prevent him/her from participating in these activities. Students will be encouraged to try new foods, but will not be required to do so. Please complete the bottom portion of this letter and return it to school with your child.

Thank you for your support.

____ ____ ____ ____ ____ ____ ____ ____

Please check one of the following: Student's name____________________

____ My child does not have a food allergy or dietary restriction. He or she may participate in food tasting.

____ My child does have a food allergy or dietary restriction. He or she may participate in food tasting but may not eat the following items (Please list)

____

Parent signature Date

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GOOD-BYE, DIRT AND GERMS!

Lesson 1

Grades K-1 "5 A Day"
Curriculum Connection: Health
Instructional Time: 10 minutes to introduce and then 5 minutes each day of unit
Student Vocabulary: germs, hygiene, scrub

NUTRITION OVERVIEW

It is important that young children learn and practice habits that are beneficial to their health. In this lesson, students will learn the importance of washing hands, and fresh vegetables and fruits prior to consumption.

OBJECTIVES

The student will state the importance of washing hands through a rhyme and finger play about personal hygiene.

The student will recite a rhyme and finger play about the importance of washing vegetables and fruits before eating.

MATERIALS

Good-bye to Things I've Never Seen rhyme (written out on a flip chart)
sink area or bucket
soap and water
paper towels
vegetables and fruits to wash
scrub brush

Optional: *I Washed My Hands Today* worksheet (at end of this lesson)

INFORMATION FOR TEACHERS

- To prepare for the lesson, write out the rhyme Good-bye To Things I've Never Seen on a flip chart. Write parts 1 and 2 on separate sheets of paper so that you may use the different parts on different days.

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- Hands carry germs that should be washed away before eating. Soap, water and adequate TIME spent washing are important factors in germ removal. A quick rinse, like so many children often practice, does little to remove harmful germs.
- Fresh vegetables and fruits carry dirt, germs, and pesticide sprays that should be washed away before eating.
- Fresh vegetables and fruits should be washed with lots of cool, running water to remove the dirt, germs, and sprays. To prevent consumption of soapy residue, washing them with soap is not recommended.
- Even if we don't eat the skins, we need to wash them. When we peel vegetables and fruits, we touch the skin which means the dirt, germs, and sprays go on our hands. Then, we touch the inside part that we eat, transferring the dirt, germs, and sprays from our hands to the vegetable or fruit.

Good-bye To Things I've Never Seen!

Rhyme:	**Finger Play:**
Part 1 (Day 1)	
I wash my hands until they're clean,	Pretend to wash hands
To get rid of things I've never seen.	Wave good-bye,shake head while pointing to one eye.
I do this many times a day,	Pretend to wash hands
To shoo the dirt and germs away!	Hands shoo the dirt/germs
Part 2 (Day 2)	
And when I eat an apple or pear	Pretend to take a big bite
I wash their skins with such great care	but STOP! and carefully rub fruit.
I do the same for vegetables too,	Pretend to use a scrub brush
To keep them safe for me and you!	Cross hands over chest, then extend them straight out.

Plan to teach the first four lines (Part 1) one day. Introduce the concept of washing vegetables and fruits and the next four lines (Part 2) the following day.

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STEPS TO FOLLOW

Part A

1. Open the lesson at snack time on one of the first days of this unit. Ask the class to imagine that their hands can talk. If their hands could talk, what would their hands say they have touched today? Ask them what they should always do before they eat (wash hands). ask

2. Explain that sometimes we can see the dirt on our hands, but germs are so small that we cannot see them. Ask why we would want to get rid of germs and explain that soap and water helps us to get rid of both. ask

3. Demonstrate a poor job of handwashing (i.e. use soap and water but wash too quickly). Ask the students if they think you removed the germs and dirt from your hands. Point out that the most important factor in removing dirt and germs is time. Teach children to wash for the duration of the "ABC song." Demonstrate washing your hands again, scrubbing all surfaces and between fingers. Have the students sing the "ABC song" with you while you wash. ask

4. Introduce Part 1 of the rhyme and finger play one line at a time, instructing students to repeat the rhyme and finger play. On subsequent days, recite the rhyme and finger play with class before snack time. You may also want to repeat step #3, choosing to omit a different key factor in handwashing each time (e.g., omit soap or water or perhaps omit both and rub your hands on your clothing, etc.). Invite the children to fill in the missing information.

5. (Optional) Invite the children to wash their hands with soap and water. Pass out *I Washed My Hands Today* worksheet. Offer an incentive for completing and returning the worksheet.

Part B

1. Explain to the students that just as we wash our hands before we eat, we should also wash our vegetables and fruits.

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2. Ask if anyone has ever seen someone pick through the vegetables and fruits at the grocery store or if anyone has ever dropped a vegetable or fruit on the floor at the store and then put it back on the produce counter. With the children, list others who might have touched vegetables and fruits on the way to their table (for example, farmers, produce pickers, processors, produce department workers). Explain that germs are carried home from the store and that is one reason we should wash vegetables and fruits.

ask

3. Using your prepared chart, introduce Part 2 of the rhyme and finger play one line at a time. Instruct students to repeat the rhyme and finger play.

4. Show the class proper washing of vegetables and fruits. Demonstrate the use of a vegetable scrub brush.

5. Remind the class that fresh vegetables and fruits are healthful, but we must wash them before we eat them.

6. You may conclude this lesson with children practicing Parts 1 and 2 together. An alternative may be to have part of the class reciting the rhyme while the other part does the finger play.

EXTENSIONS:

Act It Out

- In kindergarten, if you have a play area with a kitchen be sure to include a bar of soap and a dish towel for "clean-up" while pretending to cook and serve food.

- At a water table provide carrots and apples. Let the students wash them and serve at snack time.

- Develop a list with students of everything we wash and record it on the blackboard. It should include clothes, the car, perhaps a dog, the floors, ourselves, and more. Once the list is complete create a simple chart and ask students to help complete it by stating which items are washed because of germs, dirt, or both. This may lead to a discussion about the differences between dirt and germs. A sample chart follows.

Some children may have kitchen experience because they help out in this way at home. Students must be closely supervised if they are asked to help prepare snacks at school.

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Item	Dirt	Germ
Car	X	
Clothes	X	X

Bulletin Board Ideas

- Just as there are two parts to the Good-Bye to Things I've Never Seen rhyme, divide the bulletin board in two parts. Write the first verse in the top half and the second verse in the bottom half. Display pictures of hands, soap packages, wash cloths or paper towels, and bubbles in the top half. Display pictures of vegetables and fruits, water, scrub brush, and paper towels in the bottom half.

- Display any enlarged pictures of germs you can locate. You may find some pictures in scientific magazines or text books. Title the board *"Good-bye to Things That Now I've Seen!"* If you don't have pictures of germs, let your students draw their own creation of germs being attacked by soap bubbles.

Careers

Food Service Directors
Cooks
Health Inspectors

Class Project

When you are eating in a restaurant and you go to the restroom you may see a sign that reads "Employees must wash their hands." Why not make some colorful signs for the restrooms at school to remind students to wash their hands before school breakfast and/or lunch? If your classroom is equipped with a sink, students might work together to create a few reminders to display in that area.

Food Service Cooperation

Invite the Food Service Director to class to discuss hygiene in the food service operation. Introduce the steps that are taken to insure a clean and safe school breakfast and lunch program.

Invite the School Nurse

Ask the nurse to visit class when you talk about hygiene. The importance of clean hands before eating should be emphasized.

I Think I Can, I Knew I Could

Have each student keep track of how often he or she washes his or her hands before eating. Encourage the student to show his or her hands to a family member after cleaning them. Instruct students to put a check mark on the worksheet *I Washed My Hands Today* each time they wash their hands before mealtime.

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Physical Education
Organize a game of tag. Prepare three groups of tags: germs, apples, and soap. Group students as apples, germs, or soap and give them labeled tags to hang around their neck or pin to their shirt. Germs chase the apples, when caught they go to a designated area (sink). Students designated as soap can set the apples free.

Taking It Home
Help the family prepare dinner; suggest the students wash the vegetables and fruits for the cook.

Resources (See Resource List for descriptions)
Germs Make Me Sick, Let's-Read-and-Find-Out-Science Book
Glo-germ Science Kit, produced by the Brevis Corporation

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Name ______________________ Date ____________

I washed my hands today!

Day	**Put a ✓ each time you wash your hands before eating.**
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

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A HANDY RULE

Lesson 2

Grades K-1 "5 A Day"
Curriculum Connection: Language Arts
Instructional Time: 20 minutes/part (2 parts)
Student Vocabulary: five, vegetables, fruits, vitamins A & C, fiber

NUTRITION OVERVIEW

"5 A Day" is an important guide for healthful eating. As students learn this "handy rule," they will be introduced to vegetables and fruits as sources of vitamins A and C, as well as fiber.

OBJECTIVES

The student will repeat a rhyme that expresses a health message using words and hand motions.

The student will identify vegetables and fruits and state that five servings per day is recommended.

The student will select vegetables and fruits that have vitamins A, C, and fiber.

MATERIALS

Display "A Handy Rule" rhyme on flip chart, blackboard, or overhead.
Letter to parents or guardians photocopied onto your school's letterhead stationery
Did You Get Your 5 Today? worksheet (at the end of this lesson)
"5 A Day" videotape (5 minutes in length) - included with curriculum
Sorting cards: two sets for every group of 3 - 4 students; photocopy as needed (appendix A).

Optional: Food Guide Pyramid poster used in step two, Part A
(to obtain see Resource List) or students can make their own pyramid by cutting out the pieces from a simple pattern and pasting them together (see Lesson 11).

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INFORMATION FOR TEACHERS

- Eating a variety of vegetables and fruits is good, however, eating those which are high in vitamins A and C, and high or good sources of dietary fiber, offers the most benefit. Vitamins A, C and fiber all play a role in the prevention of some types of cancers.

- A food that contains 20%DV (Daily Value) or more of vitamins A, C and fiber is considered a "high source" of that nutrient. A food that contains 10 - 19%DV is considered a "good source." For example, if a food contains 5 grams of dietary fiber it is considered a high source (5 grams is 20%DV of the recommended 25 grams/day).

- The National Cancer Institute and the Produce for Better Health Foundation have joined together in the "5 A Day - for Better Health!" campaign. "5 A Day" refers to eating a total of five or more vegetables and fruits each day. It is the first national program to focus on the positive role of vegetables and fruits in reducing the risk of cancer and other chronic diseases. Surveys show that most people are eating two to three servings of vegetables and fruits per day.

- The Food Guide Pyramid reinforces that vegetables and fruit are part of a healthful diet and illustrates how the number five in the "5 A Day" theme connects to a national food guide. It also reinforces the recommendation of eating a combination of three vegetables and two fruits a day. A Food Guide Pyramid (poster or model) will serve as a useful reference throughout this entire curriculum.

"A Handy Rule"

Rhyme:	**Finger Play:**
5 A Day is easy to do just follow my hand then chew, chew, chew.	put up hand , extend 5 fingers
1 is high in vitamin C	close fist except for index finger
2 is colorful as can be	show two fingers
3 is eaten right out of my hand	show three fingers
4 is crisp and crunchy, so grand	show four fingers
5 is yummy, hip, hip, hoo-ray!!	show five fingers (thumb)
Now I've eaten 5 today!	bring thumb into chest (I) - then extend arm and hand out and show fingers open and extended.

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Funded by a grant from USDA, NET Program.

STEPS TO FOLLOW

Part A

1. Ask the children to list some of the many kinds of food we eat. You may choose to introduce the Food Guide Pyramid now (step 2) or move on to step 3 in this procedure. Explain that all foods have a place on the Food Guide Pyramid and that we need many different kinds of food to help us get the nutrients important for good health.

ask

2. **(Optional)** Refer to the Food Guide Pyramid poster or the model students made using the Food Guide Pyramid Puzzle worksheet from Lesson 11. Point out the the different food groups and briefly give examples of foods that belong in that group. Show the students that the foods on the bottom of the pyramid are allotted a larger space because it is recommended we eat more of these foods. Emphasize that all the food groups are important; however, we need more of some than others. Focus on the vegetable and fruit groups. Point out the recommendation to eat at least 3 servings of vegetables and at least 2 servings of fruit each day. How much is 3 + 2? (five). That's where we get "5 A Day". If the children made a Food Guide Pyramid, have them write the numbers three and two next to the vegetable and fruit groups and circle them. If desired, they can write "5 A Day" on the margin and draw in some of their favorite vegetables and fruits.

3. Show the video "5 A Day". Encourage students to pick out one way the video shows someone adding a vegetable or fruit to their diet. At the conclusion of the video, have students share observations. Would they like to try it?

4. Teach the rhyme and finger play, displaying "A Handy Rule" rhyme. For more interest and fun make a finger puppet for each finger, showing different vegetables or fruits. The list of vegetables and fruits at the end of this lesson that are high sources of vitamins A and C, and high or good sources of fiber may help you choose which vegetables and/or fruits you want to include.

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Part B

Note: Before you begin this part of the lesson you will need to copy and cut the sorting cards. First grade students may color the vegetables and fruits pictured on the sorting cards. Some of the vegetables and fruits may be new to your students. They will need assistance in choosing the correct colors. For more information, see the instructions for using the Vegetable and Fruit sorting cards at the end of this lesson.

1. Play the concentration game in groups of three to four students. Before you begin, decide how many sorting cards will appropriately challenge students without being overwhelming. Divide two matching decks of sorting cards into appropriate subsets, then shuffle them together. Place the cards in a grid pattern with the vegetable or fruit picture face down. The first child to take a turn flips over one card and then a second, trying to find two cards that match. If the two are not a match the cards are turned face down again and the next child takes a turn. The object is to remember where the cards are laid so that cards can be matched. A variation is to have the students play to match pairs of vegetables and pairs of fruits. The first child to get three matched vegetables and two matched fruits, or "5 A Day," wins.

   For a greater challenge, play "master level" concentration. To win, the student must get not only "5 A Day" but at least one of the vegetable or fruit matches must be a source of Vitamins A, C and fiber.

2. Explain that "5 A Day" is for everyone - children, teenagers and adults, even grandmas and grandpas. Encourage students to share the "5 A Day" message with their families and friends. Distribute the letter to the parents or guardians.

3. Distribute the *"Did You Get Your 5 Today?"* worksheet. Ask the students to take this home and keep record of the vegetables and fruit they eat for four days. Finally, ask the student to conclude by circling yes or "working on it" to indicate how they did. When the worksheets are returned, praise each student for their effort and participation regardless of how well they met the "5 A Day" goal.

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EXTENSIONS

Act It Out

Make a video of the class performing their version of "5 A Day." Share the video with the parents, food service personnel, and students and teachers in the upper grades.

Bulletin Board Idea

Trace or paint a hand print of each child. Let each child either draw in or paste in a picture of their favorite vegetable or fruit. Display these on the bulletin board.

Careers

Farmers
Produce Marketers
Public Health Service

Class Projects

Many grocers are participating in the "5 A Day - for Better Health!" program. In Pennsylvania the affiliated food distributors included Giant Eagle, Giant Food Stores, Riverside Markets, and Weis. Next time you go to the grocer, stop in the produce department and inquire. Collect "5 A Day" brochures and information from your grocery store. Information may be on the fresh produce plastic bags, store flyers or posters and point of purchase signs. Invite a participating produce manager to come to your classroom and bring samples of some unusual fruits and vegetables to taste. Or, take your students on a field trip to the store. Introduce produce as well as canned, frozen, dried fruits and juices. Promote the concept of variety.

ALLERGY CAUTION!

Food Service Cooperation

- Invite the Food Service Director to visit the class and assist the students in identifying which foods commonly served on the school lunch menu are high sources of vitamins A and C, and high or good sources of fiber.

- Your Food Service Director may have received promotional material on "5 A Day." Meet to discuss what your class can do to learn more and promote the national program.

Further Investigations

Health

- Vitamin C aids in wound healing. It also helps fight infections.
- Vitamin A helps us see at night and adjust to changes in the light. It also helps bones grow properly. Vitamin A in the form of beta-carotene is a promising nutrient being studied for its effectiveness in preventing cancer.

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After the students complete the *Did You Get Your 5 Today?* worksheet, have them circle or star vegetables and fruits high in vitamins A and C, and high or good sources of dietary fiber. The lists at the end of this lesson or the sorting cards can help them.

Music

Write down the chorus from the "5 A Day" videotape. Have the class sing and clap to the beat.

Math

Keep track of the different vegetables and fruits the class consumes at lunchtime for the next three days. Compare and graph the class consumption pattern to the six largest produce products sold in the United States. The six largest produce categories are, in order: apples, citrus, tomatoes, potatoes, bananas, and lettuce. Did the class consumption pattern match the national pattern? What other vegetables and fruits were consumed? (Reference: Supermarket Business, Oct. 1991.)

Social Studies

Explain that the state of Pennsylvania printed on the back of the sorting cards indicates the vegetable or fruit is grown in our state. Play the concentration game again, turning the side of the card with the picture of the state face down. See how many pairs of Pennsylvania grown vegetables and fruits your students can match.

Invite the Nurse

- Ask the nurse to discuss wound healing and the proper care for sores. Emphasize that a healthy diet with vegetables and fruits high in vitamin C helps wounds mend.

- Ask the nurse to recommend an ophthalmologist who will visit your class to discuss proper care for the eyes. Emphasize that a healthy diet with vegetables and fruits high in vitamin A helps us maintain good vision and adapt to light changes. Most children are familiar with going in and out of movie theaters and the time necessary to adjust to the light. Examples such as this make the role of this vitamin seem real. (Be sure the children understand some time is necessary to make the adaptation from bright to dim light and vice versa.)

I Think I Can, I Knew I Could

Try to follow the handy rule for the next four days. Send home the *Did You Get Your 5 Today?* worksheet and the letter to parents introducing the "5 A Day" unit. At the end of the assignment, ask the students how many vegetables and fruits they were able to eat each day. Ask how many they were able to eat all four days. Now ask questions that require simple math calculations (i.e., if a child ate one vegetable and one fruit on Monday, how many more does he/she need that day to meet "5 A Day")?

Taking It Home

- Each student should take home the parent's letter introducing the "5 A Day" unit. If you ordered the Gimme 5 Kids' Tips (See Resources), send it home along with the letter.

- Ask each child to bring in a vegetable or fruit they would like to try. Group them by vitamin A, vitamin C and/or fiber content. Wash and cut up all the choices and share with everyone in class. Have each child list (or check off on a list) which ones he/she liked. Send home the list.

- Activities in this lesson and others in this curriculum involve sampling food. Be sure to check with parents to find out if any children have food allergies or intolerances. Keep your list handy. A sample letter to parents that includes a permission slip for taste testing is included in the teacher information section at the beginning of this unit.

ALLERGY CAUTION!

- At the bottom of the *Did You Get Your 5 Today?* worksheet the student answers the question yes or "working on it." You may take this one step further by sending the worksheet home and have the student write at the bottom a complete sentence stating how many more vegetables he or she may need to reach the goal. If they have eaten five, have them write a sentence about this great accomplishment.

- Look in cupboards for the Food Guide Pyramid on packages. Bring one or two in for show and tell.

Resources (See Resource List for descriptions)

Gimme 5 Kids' Tips
Fun with Fruits and Vegetables - Kids Cookbook

For more information about the "5 A Day-For Better Health!" program call the Cancer Information Service at 1-800-4-CANCER

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Dear Parent or Guardian:

Your child is learning about "5 A Day - for Better Health!," a national health program sponsored by the National Cancer Institute and the Produce Marketing Association. Scientific reports show that eating more vegetables and fruits is linked with many health benefits including a decreased risk for some leading health problems, like heart disease and certain cancers. On the average most people eat about 3 vegetables and fruits a day. The goal of the "5 A Day" program is to get people to eat a total of five or more vegetables and fruits each day.

You may already be familiar with this program from television or through a local supermarket. If you find your child begins counting the number of vegetables and fruits that he or she eats, as well as how many you eat, you may want to keep the following in mind:

1. All vegetables and fruits with the exception of avocados, coconut and olives are counted in the "5 A Day." (The exceptions are made because of their higher fat content.)

2. All vegetables and fruits processed by drying, freezing, or canning count towards "5 A Day."

3. All juice products that are 100% juice or juice concentrate count towards "5 A Day."

Thank you for your support.

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INSTRUCTIONS FOR USING THE VEGETABLE AND FRUIT SORTING CARDS

The Vegetable and Fruit Sorting Cards are located in appendix A of this unit.

The sorting cards picture a variety of vegetables and fruits. The sorting cards are used in the following lessons but can be used in other lessons as a visual reinforcement:

Lesson 2 - "A Handy Rule"
Lesson 3 - "Winning Combinations"
Lesson 9 - "Matching and Graphing Vegetables and Fruits"

The cards are two sided. On one side is a picture of the vegetable or fruit. The other side lists specific information about that particular vegetable or fruit. The state of Pennsylvania is shown if the food can be grown in the state. If the vegetable or fruit is a high source of vitamins A and C, and a high or good source of dietary fiber, it is listed. A "high source" of a nutrient is defined as 20%DV (Daily Value) or more. A "good source" is between 10 - 19%DV. Many vegetables and fruits provide these beneficial nutrients, some in amounts below the "high" and "good source" criteria. Therefore, some vegetable and fruit sorting cards do not list specific nutrients on the back. Keep in mind that eating a wide variety of vegetables and fruits is healthful no matter what combination you choose.

To make the sorting cards, photocopy the pictures and the matching descriptors front to back. Copy as many sets as you need, one set per student or per groups of students. NOTE: In Lesson 2, to play the concentration game you need two sets of matching cards per each group of students.

The broken lines on the cards indicate where to cut, but you'll need to trim them to make each set of cards uniform in size.

There are more sorting cards than you can effectively use with a class at one time. We provided this many so that you can pick and choose the number and the foods that are appropriate for your class. You may want to color the cards to add to their aesthetic appeal. Laminating them will add years of usefulness.

The cards can be used in many ways. One way is to have the student simply name the vegetable or fruit. Other ideas include sorting by vegetable/fruit, color, shape, first letter of the alphabet, or means of growth (vine, bush, tree, etc.). We encourage you to try other creative ways to use the sorting cards.

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Foods High in Vitamin C - 20%DV (Daily Value) or more

- We need vitamin C to help heal wounds, among other things.

Vitamin C vegetables
broccoli
Brussels sprouts
cabbage
cauliflower
chili peppers
collards
mustard greens
potato with skin
spinach
bell peppers
tomatoes

Vitamin C fruits
apricots
cantaloupe
grapefruit
honey dew melon
kiwi fruit
mango
orange
orange juice
pineapple
plums
strawberries
tangerine
watermelon

Foods High in Vitamin A - 20%DV (Daily Value) or more

- Vitamin A is usually found in colorful vegetables and fruits. We need vitamin A for good eyesight and to fight off some diseases.

Vitamin A vegetables
carrots
kale, collards
leaf lettuce
mustard greens
pumpkin
romaine lettuce
spinach
sweet potato
winter squash

Vitamin A fruits
apricots
cantaloupe
mango

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Foods High in Fiber or Good Sources of Fiber 10 to 20%DV (Daily Value) or more

- We should eat vegetables and fruits for fiber as well as vitamins A and C. Fiber is only found in foods from plants. It is the stems, leaves, skin and structure of the plant. Fiber aids digestion and helps waste products move through the body. Fiber also helps prevent cancer of the digestive tract and reduce the risk for heart disease (Students will learn more about fiber in lesson 5 "Fabulous Fiber").

Vegetables with fiber

Brussels sprouts
carrots
cooked beans and peas
spinach
sweet potato

Fruits with Fiber

apple
banana
blackberries
blueberries
cherries
dates
figs
grapefruit
kiwi fruit
orange
pear
prunes
raspberries
strawberries

Note: The backs of the sorting cards indicate if the vegetable or fruit can be grown in the state of Pennsylvania. Also listed, is Vitamin A, C or fiber if that food is a high or good source. Many vegetables and fruits provide these beneficial nutrients. Those that do not meet the high or good source criteria however, may not have any nutrients listed. It is important to remember that eating a wide variety of vegetables and fruits is healthful no matter what combination you choose.

(Information on high sources of vitamins A and C, and high or good sources of dietary fiber, obtained from "Time To Take Five: Eat 5 Fruits and Vegetables a Day", NIH Publication No. 95-3826; May 1995)

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DID YOU GET YOUR 5 TODAY? WORKSHEET

Name ______________________________

Date ____________________

Did You Get Your 5 Today?

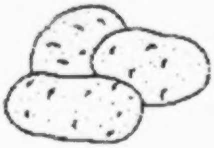
Day of the Week:
1
2
3
4
5

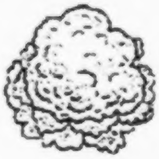
Circle YES WORKING ON IT!

Did You Get Your 5 Today?

Day of the Week:
1
2
3
4
5

Circle YES WORKING ON IT!





Did You Get Your 5 Today?

Day of the Week:
1
2
3
4
5

Circle YES WORKING ON IT!

Did You Get Your 5 Today?

Day of the Week:
1
2
3
4
5

Circle YES WORKING ON IT!

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WINNING COMBINATIONS

Lesson 3

Grades K-1 "5 A Day"
Curriculum Connection: Mathematics
Instructional Time: 35 minutes/part (2 parts)
Student Vocabulary: five, family, combinations, fruits, vegetables

NUTRITION OVERVIEW

The "5 A Day - for Better Health" national campaign encourages Americans to consume at least five vegetables and fruits a day. The recommended combination of five is three vegetables and two fruits.

OBJECTIVES

The student will record all combinations of whole numbers that sum to five.

The student will sort foods into the vegetable or fruit group, and identify combinations of vegetables and fruits that sum to five.

The student will use the Food Guide Pyramid to show the recommended number of vegetables and fruits that should be eaten each day.

MATERIALS

4 vegetable sorting cards (appendix A)
4 fruit sorting cards (appendix A)
Grade 1 - *Winning Combinations* worksheet (at the end of this lesson)
Shopping bags - one bag per pair/group of students with a representation of three vegetables and two fruits per bag (empty cans, frozen packages, pictures, or plastic models can be used)
Graphing Vegetables and Fruits worksheet (at the end of this lesson)
Food Guide Pyramid Poster (To obtain, see Resource List)

INFORMATION FOR TEACHERS

- The message of the "5 A Day - for Better Health" campaign is to eat a combination of vegetables and fruits totaling five a day. The recommendation from the USDA's Food

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Guide Pyramid is to eat a minimum of three vegetables and a minimum of two fruits a day. In order to support these two programs you should promote the "five" as a combination of three vegetables and two fruits.

- It is fine (even beneficial) to eat more than five vegetables and fruits a day. The recommendation for children according to the USDA's Food Guide Pyramid is four servings of vegetables and three servings of fruits a day. However, research shows that most people eat only a total combination of two or three servings a day; therefore recommending the minimum number of five is setting a realistic goal.

STEPS TO FOLLOW

Part A

1. Ask students to show the number five using one hand and then show the number five using two hands. Tell students to look at each other's hands for all the different combinations of five. Call on an array of students to show a variety of responses.

2. Use right hand to show zero fingers, and ask how many fingers the left hand needs to show to make a total of five.

3. Use right hand to show one finger. Ask how many fingers need to be held up on the left hand to make a total of 5.

4. Repeat until the left hand has zero and the right has five.

5. Ask volunteers to try all combinations of numbers that sum to five.

6. (Optional) Distribute and review the directions for the *Winning Combinations* worksheet. (This worksheet might not be appropriate for the kindergarten classroom. However, students can use the vegetable and fruit sorting cards to count the combinations together on the chalkboard.)

Part B

1. Review "5 A Day" theme introduced in lesson two. "5 A Day" refers to eating a minimum of three vegetables and two fruits each day totaling "5 A Day". (If the class has not seen the "5 A Day" video, this would be a good time.)

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Explain that eating five vegetables and fruits can be done in different combinations. Use the sorting cards to demonstrate "5 A Day" combinations such as four vegetables and one fruit, or three vegetables and two fruits, two vegetables and three fruits, and one vegetable and four fruits.

2. Instruct the class to form a large circle. Place five vegetable packages and five fruit packages in a bag in the middle of the circle. Have students, one at a time, choose an item from the bag until five items have been picked. Ask a student to identify the combination of vegetables and fruits that has been chosen, based on the *Winning Combinations* worksheet (i.e. 3 vegetables 2 fruits). This can be repeated until every student has had an opportunity to choose an item. Special attention should be paid to the "winning combination" of 3 vegetables and 2 fruits. Emphasize that the suggested combination for good health is at least three vegetables and two fruits.

ask

3. Divide students into pairs, give each pair a shopping bag with a total of five vegetables and/or fruits (see Materials) and the *Graphing Vegetables and Fruits* worksheet. Instruct students to first sort the five foods into either the vegetable or fruit groups. After the foods are sorted the students should create a graph on the floor by lining up the vegetables in one column and the fruits into another. Then they will transfer the information from the floor graph to the worksheet graph. The students may place an X in the box to illustrate the vegetable or fruit, or they may draw a picture of the food in the box.

4. Conclude that each group had a combination of five vegetables and fruits in their bag. Review that there is something important about having five in their bag. Ask them to state the reason why five is important.

ask

5. Review "5 A Day" by referring to the Food Guide Pyramid poster and pointing out the minimum number of servings for the vegetable and fruit groups is five. So children do not feel guilty if they cannot achieve the recommended combination, reinforce the idea that eating lots of different vegetables and fruits is healthful, no matter what combination you choose. The worksheet *Did You Get Your Five Today?* (end of lesson 2) may be used.

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EXTENSIONS

Act It Out
Using the vegetable and fruit sorting cards, have the children take turns coming up to the board and choosing combinations they would like to eat. Encourage them to include one new vegetable or fruit that they might try. Make a T on the board. Label one side vegetables, the other side fruits. Have the children place each card in the appropriate food group. If you have magnetic boards, put a magnetic strip on each card or they can be taped up. Ask the student to take note of the combination of vegetables and fruit that they choose. Again, emphasize that their goal is to consume three vegetables and two fruits.

Bulletin Board Ideas
Clip and display grocery ads for vegetables and fruits. Take a piece of paper and make it look like a shopping list. Pin the list to the board and let the students write their favorite vegetable or fruit on the shopping list. Review the shopping list with the students. Check to see if there are more vegetables than fruits. Remind the students that eating three vegetables and two fruits is the winning combination.

Class Projects
Have a contest to see who can eat five vegetables and fruits every day for a week. Celebrate the kick-off by having everyone wear something with a vegetable or fruit pictured on it or at least wear the color of a vegetable or fruit.

Food Service Cooperation
- Take a tour of the school cafeteria. List names of vegetables and fruits seen. Have a taste test of vegetables and fruits served in the cafeteria. Ask the Food Service Director to come into the classroom to introduce some unusual vegetables and fruits. Ask the students to distinguish some differences between the vegetables and fruits (sweetness or where it appears in the meal; for example, fruit for dessert and vegetables as a side dish or as the main meal like stir-fry).

ALLERGY CAUTION!

- Count the number of vegetables and fruits on the school breakfast and lunch menu. Ask students how many additional vegetables and fruits they would need to eat during the day if they ate all that was offered on the menu.

Further Investigations
Art
Assign each student a letter of the alphabet. Have the student choose their favorite vegetable or fruit that starts with that letter and draw a picture of it. Post these around the classroom.

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Language Arts

Have students (one at a time) choose a vegetable or fruit sorting card, without showing anyone else what they have chosen. They should describe this vegetable or fruit to the class until someone guesses what the "mystery" vegetable or fruit is. (They may use words that describe food group, feel, taste, color, size, etc.)

Math

- Use a math balance, Cuisinaire rods^{TM} or UNIFIX CUES® in learning centers to show the combinations that sum to five. If using a math balance, explain that in order for a pair of addends to sum to 5, they must balance with the 5 on the opposite side. If using Cuisinaire rods^{TM}, show how a 4 rod and a 1 rod equals a 5 rod. If using UNIFIX CUES®, show how two subsets can be stacked together to equal a tower of 5 blocks.

- In the math center, model appropriate one-to-one correspondence of objects to numbers. Allow students in small groups to verify the combinations of five using manipulatives or a number line.

Science

ALLERGY CAUTION!

Bring in a new vegetable or fruit each week of the unit. Do a science experiment in which students describe shape, color, texture and taste. Students will need to taste the food to describe taste (sweet, salty, sour, etc.). Chart the vegetables and fruits for various characteristics. Graph student preferences (likes and dislikes) for the new vegetables and fruits. Complete the chart with data analysis and post in the classroom or school.

Name of Vegetable or Fruit	Shape	Color	Texture	Taste

I Think I Can, I Knew I Could

See the contest described in "Class Project."

Physical Education

- Give each student a vegetable or fruit sorting card. Have them scramble around the gym using various locomotor movements (skip, hop on one leg, etc.) At the sound of a whistle, they will quickly form groups of five (or more). Special recognition can be given to groups who have 3 vegetable and two fruit sorting cards, groups with the most orange colored produce, groups with the most high fiber items, etc.

- Organize relay teams consisting of five (or more) students. Using various locomotor movements, students go to the far end of the gym to a container and pick out a sorting card. The first team to finish wins. Vary this activity in ways which reinforce the "5 A Day" concept.

Taking It Home

Let family members know about the contest (see "Class Project") - the students may do this by writing a letter home. Have the children (either in this letter or verbally) make a request to their family to have vegetables and fruits available for snacks.

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Winning Combinations

Name ______________________ **Date** __________

Directions: Fill in the missing numbers.

 Fruits	+	 Vegetables	=	5 A Day
5	+	______	=	5
4	+	______	=	5
3	+	______	=	5
Best choice! 2	+	Best choice! ______	=	Best choice! 5
1	+	______	=	5
0	+	______	=	5

5 A Day is Easy to Do!

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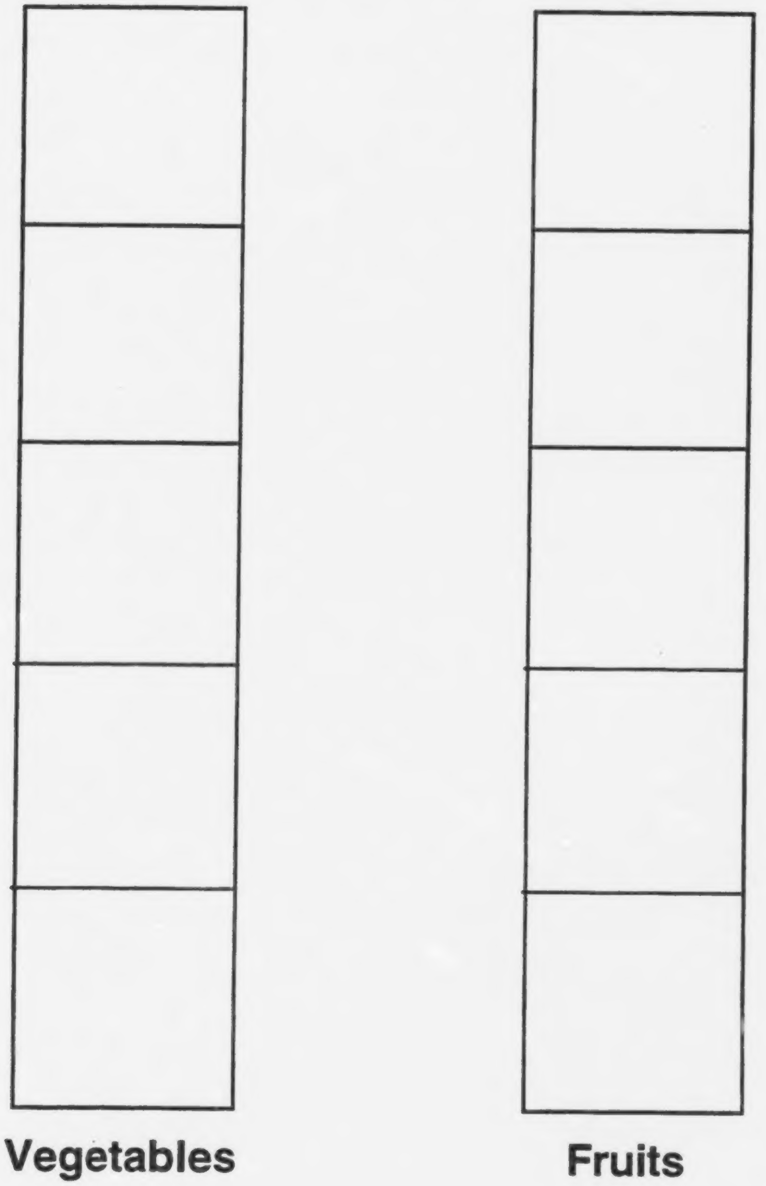
Name ______________________________

Graphing Vegetables and Fruits



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THEY START IN A GARDEN

Lesson 4

Grades K-1 "5 A Day"
Curriculum Connection: Language Arts/ Science
Minimum time: 40 minutes
Student Vocabulary: vegetable garden, seed, soil, harvest, annuals

NUTRITION OVERVIEW

Vegetables are an important food group for good health but may not rank among students' favorite foods. Growing vegetables, however, might increase students' interest in this part of their diet.

OBJECTIVES

The student will deduce some of the factors involved in gardening vegetables presented in a story.

The student will apply knowledge of selected factors involved in gardening vegetables.

The student will identify plants as an important part of a healthful diet.

MATERIALS

Growing Vegetable Soup, by Lois Ehlert (part of this curriculum package)
package of vegetable seeds (dwarf lettuce)
large bag of potting soil
several large pots
several rocks per pot to facilitate water drainage
underdish (for water leakage)
water
newspaper
(Optional) Growing Your Own Sprouts experiment

INFORMATION FOR TEACHERS

- Most vegetables are annuals and their seeds must be planted each year. (One exception is asparagus).

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- Plant foods should be the major source of our food energy. Most are naturally low in fat and high in vitamins, minerals and fiber.
- Leaf lettuce needs only five hours of full sun each day. It will be ready for harvesting in approximately 40 - 50 days. It is important to follow spacing instructions printed on the seed package and to consistently water. Thin plants if overcrowded.

STEPS TO FOLLOW

Note: Prepare pots for planting as directed in step four below. Leave one pot to do as a demonstration in front of the children

1. Ask if anyone has a garden at home and if they help with the garden. Ask about some of the plants they grow. Encourage sharing of garden experiences.
2. Show the cover of the book Growing Vegetable Soup by Lois Ehlert. Ask the students what they think the book is about. Read it aloud to the class.
3. Point out that a vegetable is a plant we eat and that most vegetables must be replanted every year. Ask students to recall how many servings of vegetables we should have each day (at least three). Have them volunteer their favorite vegetables.
4. Ask what must be done to start a vegetable garden. Discuss the preparation of the soil and the planting of the seeds. Place the rocks in the bottom of the pot and fill the pot with soil to one inch from the top. Spread newspaper under the pot for easier cleanup.
5. Let each child plant one or two seeds in the prepared pots. Refer to package instructions for spacing and planting depth.
6. Discuss the role of the sun and water. Sunlight is essential so the plants can make food. Point out that vegetable gardens are always planted out in the open so the plants can get lots of sun. Ask the class where the planted pots should be placed (on or near a sunny windowsill). Let the students feel the soil before you demonstrate watering.

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Point out that the soil feels dry so the plant needs watering. Water just enough to make the soil feel damp, not soggy (be sure to water more generously before the weekend). Each day the students can take turns watering.

Note: Could end lesson here and resume the following day.

7. Explain that a garden requires care. Each day the soil moisture should be checked. Weeds won't be a problem in the classroom but you may need to do some thinning if seeds have been planted too close together.

ALLERGY CAUTION!

8. Define harvest time as a time when crops are gathered. When the lettuce plants are strong, the leaves can be picked leaf by leaf. Inform the class you'll have a "harvest party" when it's time to harvest the lettuce. Ideas: make a sandwich using lettuce or lettuce leaves with dip plus other raw vegetables donated by parents.

9. Explain that vegetable gardens must be replanted each spring. Spring is the time when the weather is warmer and rain falls without freezing. With lots of soil, good care, water, and weeding, the vegetables will grow during the summer and will be ready to be picked before the winter frost comes. The process starts again the following spring. This is an important process in growing plant foods that we eat. Eaten washed from the garden or cooked in a pot, vegetables are part of a healthful diet.

EXTENSIONS

Act It Out

With small hand rakes, hoes, and shovels let the children dig and plant in your sand table or in a window box planter filled with dirt. If you can change the contents of the sand table, fill it with dirt, let the students pretend to plant seeds.

Bulletin Board Ideas

- Set up a seed collection with different vegetable seeds stapled to the board in clear plastic bags for the children to look at and compare. Label each bag. With string, match the seeds to pictures of the vegetable plant and vegetable food product. Discuss the seed collection and make comparisons with the size of the seed and the size of the final plant.

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- Put up pictures of vegetables and words to describe them such as crunchy cauliflower, tantalizing tomatoes, crispy cucumbers, perky pumpkins, radiant radishes, luscious lettuce, gigantic green beans, crazy corn, etc. Ask students to suggest descriptors too.

Careers

Farmers
Cooperative Extension

Class Projects

- Start a vegetable garden in your school or classroom. See the Resources List in this lesson for a book to help you get a garden started.

- Organize a field trip to a produce farm, farmer's market, or supermarket produce department. Encourage the children to prepare questions in advance to ask the vendor such as how do the different vegetables grow? (under ground, as a bush, etc.) If possible, purchase some vegetables to have at the same time the class lettuce project will be harvested. Encourage student input on which vegetables to buy and include one vegetable that will be a new experience for most of them.

- Grow bean sprouts (see directions at the end of this lesson). If possible, time this to coincide with the harvesting of the class lettuce project.

Further Investigations

Art

Create a mural of a vegetable garden. Students should suggest which colors they will need.

Science

- Put some of the same seeds you planted into a plastic bag with some of the water and a sponge. Give the bag some sunlight and watch the seeds sprout. Explain that this is what's happening under the soil. Explain how the sponge is like soil and how it's different.

- Refer to the sequence of the seasons; fall is just before winter. In winter the temperature is cold, so water and the ground freeze. In spring, the angle of the sun to the earth makes the air warmer. The ground thaws and the rain doesn't freeze anymore. Illustrate the changes plants go through during each season: spring - plant seeds, summer - seeds grow, fall - pick vegetables, winter - vegetable plants die. Divide a piece of paper into four squares and have the children draw a garden at each season. This can be taken a step further; cut the squares and have the children use the pictures as a sequencing game.

- Discuss the role of a compost heap in gardening and recycling waste.

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Language Arts

- Refer to the vocabulary list in this lesson. Discuss how the words are related. Ask the children to use each word in a sentence. As a class, combine the words into a paragraph and write on chart paper.
- Read Stone Soup by John Stewig. Ask parents to donate vegetables to make soup in a crockpot. Specify which vegetables are needed and request they be clean and ready to go directly into the crockpot. Some children may be assigned to bring styrofoam cups, crackers, beverage and other supplies for this activity.

ALLERGY CAUTION!

Invite the Nurse (or Cooperative Extension Agent)

If you live in a rural area or one that has a considerable number of families with gardens, you may want to invite the nurse to discuss garden safety with your students. Pesticides, chemical fertilizers, cutting tools, and pressure-treated wood present dangers to children. Any metal tool can be dangerous when it is left lying around or is not being used properly. Recommend that the nurse discuss all safety features as well as the health benefits from gardening and eating vegetables.

I Think I Can, I Knew I Could

Challenge your students to eat at least one fresh vegetable today.

Physical Education

The students pretend to be vegetable seeds. Direct them to act out the following in a game of "Simon Says":

act like a seed
sprout
grow roots and leaves
pretend you need water
pretend it's warm and sunny
pretend you've just been watered

Taking It Home

If a parent is a gardener, invite him/her to class to talk about the vegetable garden. Ask him/her to discuss some of the chores involved in maintaining a garden, such as weeding, watering, and harvesting.

Resources (See Resource List for descriptions)

Books

A Book Of Vegetables by Harriet L. Sobol
The Carrot Seed by Ruth Krauss
A Garden Alphabet by Isabel Wilner
How a Seed Grows by Helene J. Jordan
Vegetable Garden by Douglas Florian
Your First Garden Book by Marc Brown

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The Victory Garden Kids' Book: A Beginner's Guide to Growing Vegetables, Fruits and Flowers by Majorie Waters
Stone Soup by John Stewig

Gardening programs
Children's Seed Program
GrowLab
Let's Get Growing!

Games
"Harvest Time" produced by Animal Town

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GROWING YOUR OWN SPROUTS

When seeds sprout, they are rich in many nutrients, especially protein. You can easily grow your own sprouts at home.

You will need:
An empty glass jar
A piece of muslin or cheesecloth
A rubber band
Some seeds (alfalfa seeds, chickpeas, mung beans, or soy beans)

1. Soak 2 to 3 tablespoons of seeds in warm water overnight.
2. Rinse the seeds in cold water and drain them.
3. Put the seeds in the jar and cover the top with muslin or cheesecloth. Fasten the cloth onto the jar with a rubber band.
4. Store in a warm, dark place. Rinse in cold water 2 or 3 times a day until the the sprouts are long enough to eat. This takes 3 to 5 days.
5. Rinse, drain, and eat.

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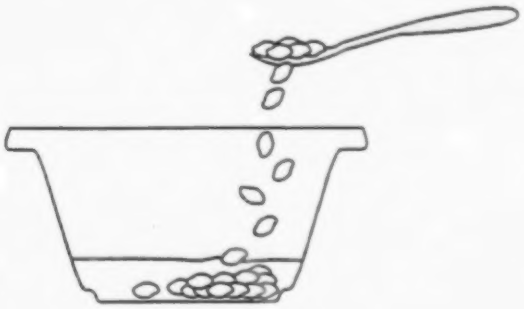

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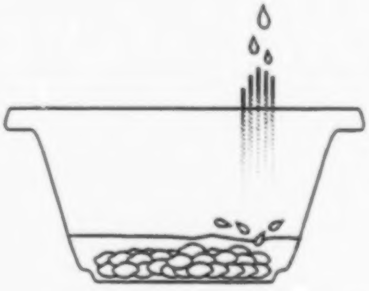

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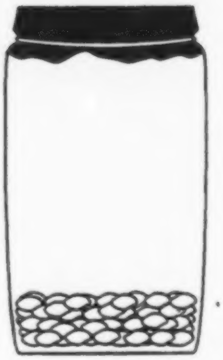

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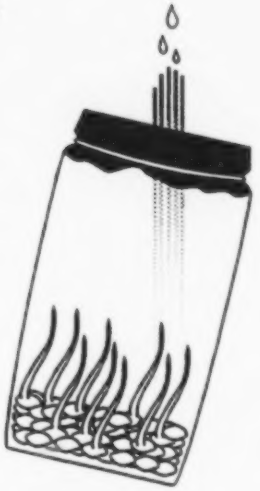

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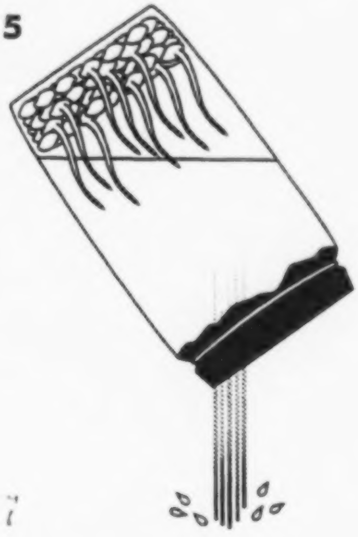

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FABULOUS FIBER

Lesson 5

Grades K-1 "5 A Day"
Curriculum Connection: Science
Instructional Time: 30 minutes/part (2 parts)
Student Vocabulary: fiber, peel, skin, stalk, stem, leaves

NUTRITION OVERVIEW

Most adults know fiber is found in foods, but seldom do we consider its "fabulous" health benefits. Students will observe fiber in plant parts and become familiar with some "fabulous" fiber foods.

OBJECTIVES

The student will explore and discover fiber in plant parts.

The student will name foods with fiber.

MATERIALS

sample of vegetable fiber (fresh celery or spaghetti squash)
knife

Optional:
fresh fruit samples (banana, orange, pear)
examples of plant parts such as: stem (celery), leaves (lettuce), skin (apple)
hand lens
sorting cards of vegetables and fruits that are high or good sources of fiber (appendix A)
Fiber worksheet (art extension)

INFORMATION FOR TEACHERS

- Only plant foods like vegetables, fruits, dry beans and grains have fiber. Even though meat is sometimes described as "fibrous," it contains little to no fiber. Eggs and milk products do not contain fiber either.
- Advertisements for grain products like breads and cereals often highlight fiber. The fiber in vegetables and fruits are not advertised as much.

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- A good source of dietary fiber is a food that contains 10 - 19% of the daily value (%DV). This means approximately 2 grams of fiber need to be in one serving of that particular food. Many foods meet the "good source" criteria. The average fiber content in 1/2 cup of vegetables or fruits is 2 grams. One slice of whole grain bread is 2 grams. If a food provides 5 grams of dietary fiber or more (20% DV) it is considered a high source of fiber. One 1/2 cup serving of cooked dry beans is generally 5 - 8 grams dietary fiber. Bran cereals are at least 5 grams fiber per serving, much more if 100% bran.

- Foods that contain at least 10% of the daily value (%DV) for dietary fiber (without fortification) are permitted by the FDA to have a health claim on the label. However, The Nutrition Labeling and Education Act specifies that foods bearing health claims must not contain any nutrient or food substance in an amount that increases the risk of a disease or health condition. Therefore, foods that are good sources of dietary fiber must also contain 20% or less of the daily value of fat, saturated fat, cholesterol and sodium. These are the substances the FDA has identified as risk nutrients.

- Of the seven health claims the FDA allows on food labels—-three pertain to dietary fiber. A sample health claim found on a food label might be "Low-fat diets rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer, a disease associated with many factors."

- Fiber is commonly categorized as soluble or insoluble (in water). Soluble fiber is associated with lowering blood cholesterol levels. Insoluble fiber aids elimination of wastes from the body and is associated with a reduced risk of cancer. Ideally, equal amounts of both types of fiber are consumed in the diet through whole grains, vegetables, fruits and dry beans.

- Fiber aids in digestion by helping to move waste materials out of the digestive system. Fiber itself is not digested but provides the bulk needed to move food particles through the small and large intestines. Fiber also absorbs water and helps keep stools soft and moist so they are easier to pass from the large intestine.

- Most Americans consume between 10 and 15 grams of dietary fiber per day. The RDI (recommended daily intake) for adults is 25 - 35 grams per day. A fiber intake greater than 35 grams per day may interfere with nutrient absorption and is not recommended. Age plus 5 is the fiber recommendation for children ages 3 - 18.

- The optimal way to meet fiber requirements is through a gradual, increased consumption of fruits, vegetables, dry beans, and whole-grain cereals. Drinking plenty of liquids as fiber intake is increased is important to prevent development of constipation. Eight (8oz) glasses of water daily is recommended when consuming 25-35 grams per day. (Food labeling information obtained from FDA Consumer, May 1993)

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STEPS TO FOLLOW

Part A

1. Review with the children the recommendation to eat a variety of five vegetables and fruits a day. Ask the students why they think it is important for health to eat vegetables and fruits.

2. Show students the word fiber. Ask if they have heard the word used and in what context. See if the class can help you write a definition of fiber. Use a dictionary to verify the meaning. Fiber provides the structure of the plant in the skin, seeds, stems, etc. Only plants have fiber. The plants we eat are vegetables, fruits, dry beans and grains.

3. Explain that fiber is in plenty of foods that don't have actual strings of fiber we can see. However some vegetables and fruits have visible fiber. Provide a vegetable like celery. Find and show the fiber by removing a strand of fiber from the celery. Explain to the students that these strings which you are holding are fiber, and that fiber is found in vegetables and fruits. Tell the students that fiber is good for you to eat.

4. Give the students small sample cuttings of vegetables and fruits so that they may pull out the fiber. Encourage them to look at the fiber through the hand lens and describe what they see.

5. Review the fact that vegetables and fruits are healthy types of foods to eat. One reason is that they contain fiber.

Part B

1. Place one stalk of celery and a radial cut of orange (circle slice) on a paper towel on a shelf near a window. Ask the students to observe what happens to the vegetable and fruit over the next few weeks. Ask the students to keep a log of their observations based on sight (what they see through the hand lens) and touch. As the foods sit out, the water will evaporate and the food will dry out; however, the fiber will remain and harden.

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2. Discuss the importance of fiber as an aid in digestion. "Fiber is like a broom that sweeps out the inside of your body and helps keep it clean".

EXTENSIONS

Bulletin Board Ideas

Collect food advertisements from magazines that advertise the food with the word "fiber." Title the board, "Fabulous Fiber," and pin the ads to the board. How many of the foods are vegetables and fruits and how many are dry beans and grains? Reinforce that all plants have fiber but grains are usually advertised more than vegetables and fruits. Let the students create their own ads for vegetables and fruits by drawing pictures and writing the word "fiber" on the advertisement. Pin the new ads to the bulletin board.

Careers

Dietitians
Doctors
Scientists

Food Service Cooperation

Ask the Food Service Director to lead the class in identifying high or good sources of fiber on the school lunch menu (see list in Lesson 2). Which vegetables and fruits are the class favorites?

Further Investigations

Art

Instruct students to complete the *Fiber* worksheet at the end of this lesson. On the top half of the worksheet, the students glue different colored beans in the boxes and write the color of the beans in the blank next to each one. On the bottom half of the worksheet, the students draw strands of fiber on the celery and the bread; or, glue something on that represents fiber, i.e., string, bran cereal, etc.

Health

- If you discuss digestion in health be sure to include the function of fiber. Explain that fiber works the muscles of the digestive tract. Just as we need to work our large skeletal muscles, we need to work the smooth muscles of the digestive system. Fiber functions to keep those smooth muscles moving and strong as it pushes waste products from our bodies.

- Use the sorting cards. Have the students play another version of concentration. This time they place the vegetable pictures face up and nutrients face down. The students look to match cards with fiber. All other matches stay on the board or floor.

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Invite the Nurse

The nurse may offer some tips to your students about taking care of their intestinal tract. One way to do this is to eat plenty of foods with fiber. Be sure to mention fiber needs water to function at its best. Fiber is like a sponge and can soak up water along its path, so it is a good idea to drink plenty of water and other liquids when eating fiber-rich foods.

I Think I Can, I Knew I Could

Challenge each child to eat one vegetable or fruit a day that is a high or good source of fiber. Refer to the list in Lesson 2 or point out the vegetables and fruits in the set of sorting cards that have the word fiber on the back.

Taking It Home

Ask the students, with a family member, to look for the word fiber in advertising. They can do this by observing food packages, television advertisements, or magazine advertisements. Ask each child to report what foods they found associated with fiber. As a class have them summarize what foods are typically referred to as high in fiber. Have the students then create some advertisements for vegetables and fruits which highlight fiber. For examples of vegetables and fruits which are high or good sources of fiber, see the list in Lesson 2.

Taste Test/Resource

ALLERGY CAUTION!

The Very Hungry Caterpillar by Eric Carle. Read the story to the children and follow it with a snack in the shape of a butterfly.

Ingredients
12 stalks of celery, washed and cut in half crosswise
48 twist pretzels
48 stick pretzels
peanut butter, cream cheese or cheese spread
48 raisins

Fill each celery half with peanut butter, cream cheese or cheese spread. Stick two twist pretzels into the spread for wings (if desired, break off part of the pretzel so that the remaining portion is a circle). Use two pretzel sticks for antennas and two raisins for eyes. Eat your butterfly before it flies away!   24 servings.

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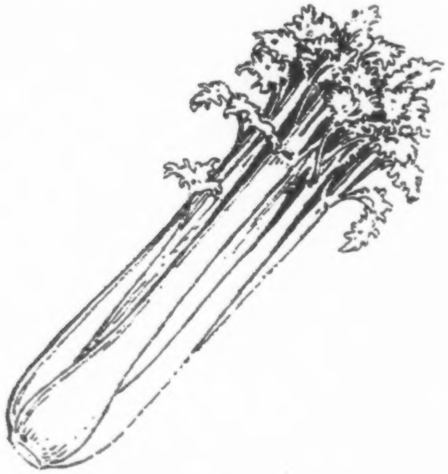
Name ____

Fiber Worksheet

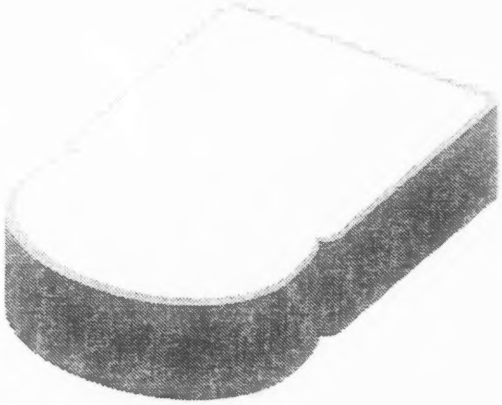
Beans come in many colors.

Glue bean here	Write color here
☐	______________________
☐	______________________
☐	______________________
☐	______________________
☐	______________________

Fiber Foods



celery



bread

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MYSTERY FRUIT FORMS

Lesson 6

Grades K-1 "5 A Day"
Curriculum Connection: Science
Instructional Time: 20 minutes
Student Vocabulary: form, frozen, fresh, dried, canned, juice

NUTRITION OVERVIEW

Children are encouraged to eat a minimum of two servings of fruit a day. Fortunately there are many ways to reach this goal because fruit comes in a variety of **forms**.

OBJECTIVES

The student will use his/her senses to identify different forms of fruit, all of which can contribute to making a healthy body.

The student will link different forms of a fruit to the same origin.

MATERIALS

1. Mystery box and wrapping paper
   To make, select a box that has a removable lid. Cut a hole in the top big enough for a child's hand to go in, approximately 3 1/2" X 3 1/2". Wrap the box in newspaper, brown wrap, or gift paper.

2. Place at least one example of the following fruit **forms** inside the mystery box:
   fresh fruit (piece of fresh fruit is best, or a plastic model of a fresh fruit)
   fruit juice (can or bottle - 100% fruit juice)
   canned fruit
   dried fruit package
   frozen fruit package

   Note: For students in younger grades, try to use fresh fruit and actual fruit packages. If possible, keep bottles or cans of juice cold and the frozen fruit package frozen until the last minute. Providing more than one example of each fruit **form**, especially fresh, helps reinforce lesson objectives.

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INFORMATION FOR TEACHERS

- Fruits that count towards the "5 A Day" goal can be fresh, frozen, canned, juiced, or dried.
- Only fruits that are labeled 100% fruit juice count towards "5 A Day". Fruit drinks, punches and fruit beverages with 10% juice do not count. These are mostly water and sugar and do not have the vitamin and mineral content of 100% fruit juice.

STEPS TO FOLLOW

1. Direct students to sit in a circle on the floor. Place the mystery box in the middle of the circle. Ask the students if they like a good mystery. Several may not know the meaning of the word "mystery." Invite the students who like a mystery to explain why they like it. This explanation should provide clues to the other students regarding the meaning of the word "mystery." Point out that using clues to define a word is like solving a mystery. Direct attention to the box and explain that it is a mystery box because we don't know what is in it. ask

2. Ask how we can find out what is in the box. Focus on the senses (looking, smelling, touching, hearing). Draw attention to the hole on top and suggest using the sense of touch to solve the mystery. ask

3. Explain that the things inside the box are all different but have one thing in common (they are all **forms** of fruit, i.e., fresh, juice, dried, etc.). Choose a student to volunteer to place his/her hand into the box to find one item. That student will tell the others what he/she feels by using three words to describe the texture, shape, material, size, etc. Instruct the student not to say what the object is, but only give a description.

4. Ask the other students to listen to the description to guess the **form** of the fruit. (Another round of clues may be needed for the younger grades). ask

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5. Once identified, have the student lift the lid to pull the item out of the box without revealing the identity of the other things in the box. Place the item in the center of the circle in front of the mystery box. Instruct student volunteer to pick another child to stick his or her hand in the box and describe what is felt.

6. Repeat this until all items are identified and placed in front of the mystery box. Ask what these items have in common. Give clues, as needed, reaching the conclusion that these are all **forms** of fruit. ask

7. Remind students that all these **forms** come from the same food and these foods help our bodies by giving us nutrients to help us grow and to have energy. Ask the class how many servings of fruit we should have each day (at least two). ask

EXTENSIONS:

Bulletin Board Ideas

Use string to connect pictures of fruits in different forms to the fresh fruit on the bulletin board.

Careers

Nutrition Scientists
Nutrition Education Researchers

Class Projects

- Change the form of a fruit in one or more of the following ways. Squeeze juice from oranges. Bring in a food dehydrator and dry apple pieces or some other low moisture fruit. Dip banana chunks into lemon juice, then insert popsicle stick or tongue depressor. Place in freezer to make frozen banana pops.

- Ask the students to name any fruit(s) they ate for lunch. Keep track on the chalk board of the fruits, based on the form in which they were eaten (fresh, juiced, dried, frozen, canned). It may be helpful to have a school menu available to prompt the students. Drawing a graph may help the students visualize the most popular form(s) of fruit that was eaten.

Food Service Cooperation

Have the Food Service Director come into the classroom and talk about the way fruits are bought for the school. Does your school district buy more fresh, frozen, canned, juiced, or dried fruits and why? Have him/her explain perishable and the advantages and disadvantages of the forms. Have the Food Service Director read the school lunch menu for the week (do it day-by-day) item-by-item. If the Food Service Director says a word that is a fruit the students should raise their hands. Then have the students say the form it is in (canned, fresh, dried, etc.)

Further Investigations

Mathematics

Write the words dried, fresh, canned, frozen and juiced in columns on the chalk board. Show five fruit sorting cards and discuss each fruit. Make checks in each applicable column to show in which of the five forms that fruit can be purchased (for example, grapes could be fresh, frozen, canned, dried and juiced but cantaloupe is only available fresh and frozen). Rank order this list to illustrate which fruits come in a greater variety of forms, and which have fewer forms.

Taste Testing

ALLERGY CAUTION!

- All the forms of fruits could be from the same fruit, such as an apple, apple juice, dried apple, canned apples or applesauce, and frozen apples. Provide a sample of each of the apple forms to let the students taste, describe, and compare the different forms of the apple.

- Try other varieties of fruits in different forms -fresh, juiced, dried, canned, frozen, etc. Suggestions: pineapple is found fresh, dried, juiced, or canned; bananas are eaten fresh, frozen, or dried; papaya is usually enjoyed fresh or juiced. When using juice, be careful to choose 100% juice, as recommended by the "5 A Day" program.

Taking It Home

- Ask students to look in their kitchens at home to identify fruits found in the cupboard, refrigerator, or out on the counter. Count the different forms (frozen, canned, dried, juice, or fresh) and the number of items they have in each form and share the information with the class. Drawing is one way they can relay the information. They can draw the items they found at home in the three places in the kitchen: cupboard, refrigerator, and counter.

- Ask students to bring in one empty fruit container from home. The next day graph the containers by lining them up according to the forms fresh, frozen, canned, juice and dried. Finally, make a bulletin board titled "Ways We Get Our Fruit."

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RIPE AND READY TO EAT!

Lesson 7

Grades K-1 "5 A Day"
Curriculum Connection: Science
Instructional Time: 15 minutes/part (2 parts)
Student Vocabulary: ripe, ripen, five senses (smelling, tasting, touching, seeing, hearing)

NUTRITION OVERVIEW

Students will learn the difference between underripe, ripe, and overripe fruits. They will determine that fruits should be ripe when eaten.

OBJECTIVES

The student will use his/her senses to compare and contrast fruit at different stages of ripening.

The student will chart his/her observations.

MATERIALS

Ripe and Ready to Eat worksheet (at the end of this lesson)
under-ripe (green) banana
ripe (yellow) banana
overripe (brown) banana
plastic knife
paper towels

INFORMATION FOR TEACHERS

- This lesson can be conducted in a large group setting using only one of each type of banana. However, for optimal discovery, buy a bunch of each type of banana, divide the class into groups of four or five, and conduct the activity in small groups so that each child can taste and compare using his or her five senses.
- Ripe means fully grown, developed, and ready.

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- When a fruit ripens, it's metabolic rate dramatically increases resulting in a rapid breakdown of starch into sugar. Thus, fruit becomes sweeter. This increased metabolic rate produces many soluble and volatile compounds that give fruit its characteristic flavor and aroma.

STEPS TO FOLLOW

1. Review the five senses with students-touching, tasting, smelling, hearing, and seeing.
2. To help students organize their information, draw a chart on the blackboard or prepare one ahead of time and give it to students on the day of the lesson. Use the chart to record the information students collect using their five senses. A sample chart follows:

	Seeing	Smelling	Touching	Hearing	Tasting
Underripe					
Ripe					
Overripe					

3. Instruct students to form a circle around a station where one green (underripe) banana, one yellow (ripe) banana, and one brown (overripe) banana are placed on separate paper towels.
4. Ask students to compare and describe the three bananas using their eyes. ask
5. Encourage students to smell and describe the aroma of each banana. Rank the bananas from weakest to strongest in odor.
6. Ask students to gently squeeze the bananas and to describe the differences. Compare the thickness of the banana peels. ask
7. Peel each banana. If the students are quiet, they can hear the peel of the underripe banana snap when they pull the stem to peel. Allow each student to pull the peel down just a little to feel the resistance and the ease of peeling.

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8. Cut small slices of the under-ripe (green), ripe (yellow) and over-ripe (brown) bananas.

   Allow each student to taste the bananas one at a time to compare the taste. Ask which banana tastes sweeter and which one they prefer. To record taste preference use the *Ripe and Ready to Eat* worksheet. Ask the students to color the bananas as they see them. Then draw a happy, neutral, or sad face in the oval shape (head) at the bottom left hand side of each banana to describe their reaction to the taste of each.

Encourage students to taste new foods, but remember the possibility of food allergies. Check the parent responses for any students who may be allergic to this food. Also, do not force students to taste something they don't want to- brown bananas might be declined by some.

9. Define ripe as fully grown, developed, and ready to eat. (See Extensions - Language Arts to use the vocabulary process strategy to give meaning to the word ripe.)

10. Explain that bananas and other fruits become sweeter as they ripen but, when fruits become too old, they can become too soft and the texture isn't as pleasurable to eat. Overripe bananas are often used to make banana bread, cakes, milk shakes, pancakes, etc.

EXTENSIONS

Bulletin Board Ideas

Set up a bulletin board titled "Going Bananas." Acknowledge the fact that the banana is the #1 selling tropical fruit. To illustrate the tropics show sun and moisture. Using a world map tag Hawaii as the only U.S. state that produces bananas for the world. To take it a step further show Central America, South America, Australia, India, and the Philippines as other areas for banana production. List facts about climate in Hawaii and your state. By looking at the map and understanding climate differences between your home state and Hawaii ask your students to draw a conclusion to the location of growing bananas and what is meant by the "tropics."

Careers

Teachers
Fruit Growers
Foodservice workers

Food Service Cooperation

Ask the food service to prepare something special made from bananas such as bread or muffins to put on the breakfast or lunch menu.

ALLERGY CAUTION!

Further Investigations

Language Arts

Instruct the students to define the word "ripe" based on this lesson. Have them verify the meaning by locating "ripe" in the dictionary. Students then should define ripen using the same approach. Finally have them either draw a picture that shows ripening, write a sentence with the word ripe in it, or describe in their own words what happens to the banana as it ripens.

Science

- Place a green (under-ripe) banana and a yellow (ripe) banana on a shelf with a sign that says "Watch and See What Happens." Invite the children to observe the changes that occur as the bananas ripen. Direct students to use three senses (i.e., sight, touch and smell) to observe the changes. Ask students to predict how many days it will take for the bananas to change. Record and count the number of days it takes for the green banana to turn yellow and the yellow banana to turn brown. Each child can keep an observation log by simply coloring and drawing what they see. Words are optional.

- Ripen a banana quickly by taking a green banana and placing it in a brown paper bag with a ripe apple. Set up a control, in which you leave a second green banana outside the bag on the shelf. To create more curiosity, you may also place a banana by itself in a bag. Your students should see a difference the next day. The banana in the bag should ripen overnight because through respiration the apple gives off gas and carbon dioxide which enhances the ripening of the banana. To record the comparison of the bananas, have the students transfer the information to paper by drawing and coloring pictures of the bananas before and after the experiment.

Social Studies

The banana is a tropical fruit. Warm rain and lots of sunshine are necessary to grow tropical fruits and vegetables. Show the tropics on a world map. Relate this distance from your hometown (travel time may be one way to do this). Explain that your climate does not allow for the growth of bananas. Nevertheless, through transportation, bananas are available all year around and are the #1 selling tropical fruit. Discuss the various forms of transportation that may have been used to bring bananas to you.

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Funded by a grant from USDA, NET Program.

Taste Test

Use the overripe bananas to make banana bread.

Ingredients:

1 1/4 cup white flour
1/2 cup whole wheat flour
1 egg
1 tsp. vanilla extract
1 tsp. baking soda
1 tsp. cinnamon
2 ripe bananas (1 cup mashed)
1/2 applesauce
1/2 cup sugar

ALLERGY CAUTION!

Directions: (makes 20 servings)

Preheat oven to 350°
Mix applesauce, sugar and egg
Mix in the remaining ingredients
Pour into loaf pan(s)
Bake 30 - 40 minutes

- Provide a ripe-taste test. Give the students two samples of a fruit, one under-ripe and one ripe; don't tell them which is which. By taste and sight let them determine the ripe one. This can be done with peaches, pears, or kiwifruit.

- Bring to class dried bananas as a special snack treat. Compare the taste, texture, look, and feel of the fresh and dried banana. Ask how many had dried bananas for the first time. Congratulate them on trying something new.

Taking It Home

- Explain why we have different forms of fruit like canned, frozen and dried. Fresh is "perishable", it will "go bad" and "rot" if not eaten in a certain number of days. (Fruits ripen at different speeds so some fresh fruits can sit on the counter or in the refrigerator longer than others.) Frozen and canned fruits are processed at the peak of ripeness. Frozen fruit must remain frozen until used. Canned fruit must be refrigerated after opening. Students will enjoy looking for these items at home and reporting to you if they are stored in the cupboard, refrigerator, freezer, or out on the counter in a bowl.

- Students may take the recipe home and bake the banana bread with a parent or guardian.

Resources (See Resource List for description)

The Day the Teacher Went Bananas by James Howe

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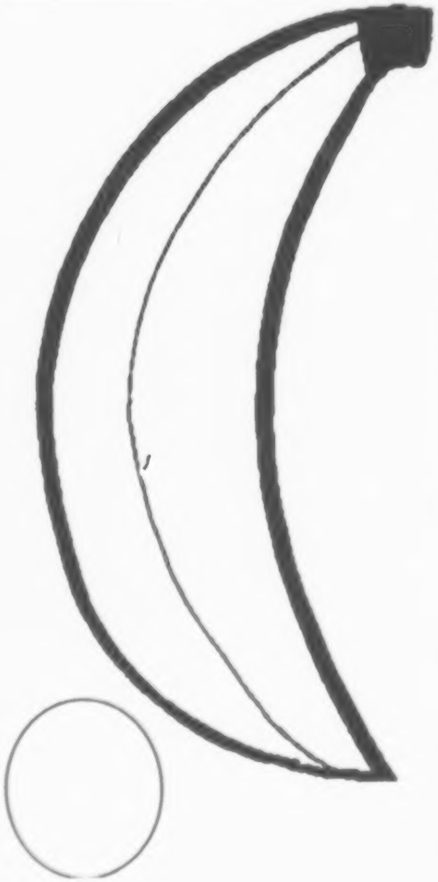
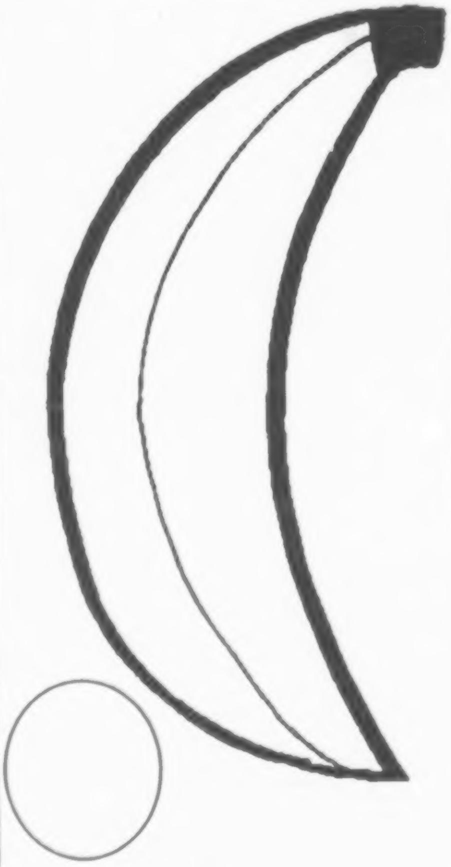
RIPE AND READY TO EAT

Name ____________________

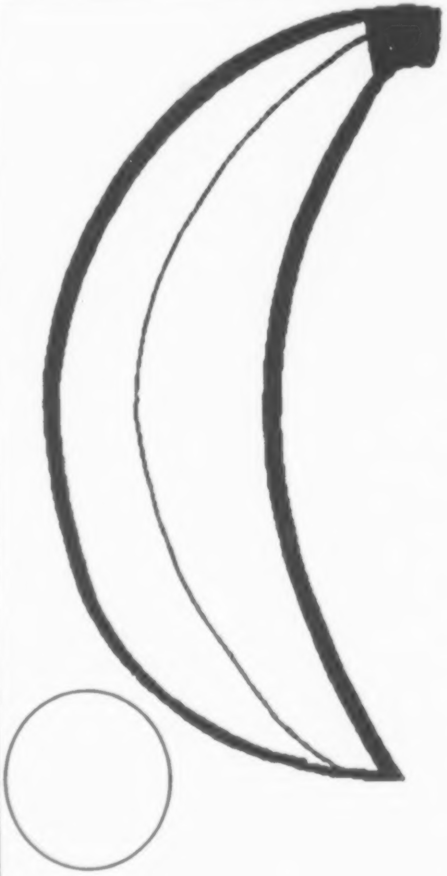
UNDERRIPE



RIPE



OVERRIPE



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Ms. Spaghetti Sauce, Let's Look at Your Life

Lesson 8

Grades K-1 "5 A Day"
Curriculum Connection: Social Studies
Instructional Time: 30 minutes
Student Vocabulary: United States of America, Pennsylvania, California, processing, ripening, harvesting, food source, transporting

NUTRITION OVERVIEW

It is important for consumers of all ages to understand that foods we eat may go through many processes before they reach our table. Great costs are involved in transporting fresh foods from coast to coast. High costs may influence our food choices more than we think.

OBJECTIVES

The student will follow the sequence of events involved in getting tomatoes from the farm to the grocery store.

MATERIALS

labels from spaghetti sauces
a tomato sorting card (appendix A)
a fresh tomato or a food model
occupational graphic sheets (at end of this lesson)

optional: map of the United States, transportation props (see Steps to Follow), and hats with labels identifying occupation

INFORMATION FOR TEACHERS

- The botanical definition of a fruit is the ripened ovary of a female flower (the part of a plant that bears a seed). Therefore, from a botanical perspective, a tomato is a fruit. However, when grouping foods for a food guide, foods are grouped by nutrient composition. Since a tomato has a nutrient composition more like a vegetable than a fruit, it is categorized (in food guides) as a member of the vegetable group.

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- Tomato products like spaghetti sauce are manufactured in Pennsylvania, and other Eastern states. However, tomatoes are grown on the East coast only in the summer. In order to consistently have a tomato product like spaghetti sauce on the grocer's shelf, East coast processors rely on tomatoes grown in California.

STEPS TO FOLLOW

This lesson can be organized in several different ways. You may simply wish to read the information to the students while they listen for the people, equipment, and actions that were involved in the life of the tomato on its way to becoming sauce. Or you may try to act it out yourself being the Master of Ceremonies and having all the props ahead of time. Also, you may want your students to act out "Ms. Spaghetti Sauce, Let's Look at Your Life." This could be a unit for cooperation between the first grade and kindergarten classrooms. Let the first grade hear the story and then make plans to act out "Ms. Spaghetti Sauce, Let's Look at Your Life" for the kindergarten class. The next year, the kindergarten will look forward to being a part of the production.

The occupational graphics worksheets are a useful tool for planing an "act it out" event.

Let's Look at Your Life is a celebration of a person (or thing such as spaghetti sauce) and the steps or people that remember that person (or thing) during its lifetime (or steps of processing). Each person in the story below is a potential character in the Let's Look at Your Life production. Each person tells some humorous story or fact about the stage in which they were involved with the tomato. This is a lesson in which you and your students can let your creativity shine.

1. Introduce Ms. Spaghetti Sauce by showing a can or jar of spaghetti sauce. As the Master of Ceremonies announce "Ms. Spaghetti Sauce, Let's Look at Your Life!"

   Using your own creativity select which of the following steps and people you want to include in your presentation. Inform Ms. Spaghetti Sauce that as she started from a tiny seed she has met many people along the way. Today Ms. Spaghetti Sauce's friends are here to help you celebrate the life of the tomato destined to become part of one of America's favorite dishes - Spaghetti with Sauce!

People (job)	Action	Equipment
Farmer	plants the tomato seeds	uses a tractor
	operates equipment	combine which by light-sensitive equipment selects ripe tomatoes
Tomatoes pass the test, and move on!		
Truck Driver	drives	tractor trailer full of tomatoes goes to the processing plant
Processing Plant Worker	unloads tomatoes	conveyor belt onto conveyor belt
USDA Inspector	checks tomatoes weighs tomatoes inspects for molds	conveyor belt scales
Tomatoes pass the test, and move on!		
Processing Plant Worker	washes tomatoes	cold water reservoir
	checks and removes stems, leaves,and things that don't belong in sauce	conveyor belt
	assists as tomatoes are crushed solid and go to the filling station to be put into drums or aseptic boxes	conveyor belt crusher
	puts the drums or boxes onto trains to be shipped to other places like Pennsylvania	trains

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People (job)	**Action**	**Equipment**
Train engineer	operates	train
Processor	picks up the boxes or drums of tomatoes turns it upside down and with high pressure water, empties the solids from the box Adds water to the solid	dumper hose
Cook	prepares spices; meat and vegetables are prepared and adds them to the sauce	cooking vat
Manufacturer	jars are labeled and filled with hot sauce sauces are cooled sauce is ready for shipping	assembly line
Truck driver	transports sauce to supermarket's central warehouse	truck
Warehouse Worker	moves and places boxes of sauce on storage shelves	fork lift
Grocer	notifies the warehouse when they need more sauce	telephone
Store truck driver	delivers sauce to the supermarket	delivery truck
Grocer	restocks the shelves	hand truck
Customer	selects sauce buys the sauce takes sauce home	shopping cart conveyor belt car, bus, train, or bicycle or walks the sauce home
	puts the sauce on a kitchen shelf or prepares the sauce with pasta, or pizza dough serves, eats and enjoys!	cooking utensils serving dishes

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2. Explain to students that many foods in the supermarket today are transported from far away and processed several times before being shipped. Ask students for an example. Apples, for example, are processed to become apple juice, apple butter, applesauce, etc. Ask students to name some other examples of processed foods and to name the original source of the food. For example, potato chips are made from potatoes, peanut butter from peanuts, spaghetti from wheat, and cheese from milk.

EXTENSIONS

Act It Out

Bring in toy trains and trucks and allow students to act out transportation during dramatic play (kindergarten). Using a twin bed sheet, draw an outline of the United States with Pennsylvania highlighted. Lay this out on the floor so the children can move the trains and trucks across the map.

Bulletin Board Idea

Pin a map of the United States to the bulletin board. Provide a string with a paper truck on the end of it. Start the string in your state and make sure the string is long enough to cover the United States in any direction. Title the board "Moving Our Food" and just let the children explore by moving the string and truck.

Food Service Cooperation

Using a map, ask the Food Service Director to label the locations of some of the vendors that supply food for your district. Illustrate the fact that the foods we eat come from places both far and near. Transportation and communication are major factors in getting food to your school cafeteria. Ask the Food Service Director to share the steps necessary to get food (especially vegetables and fruits) to the student's meal.

Further Investigations

Language Arts

- Invite the children to tell a story about how a tomato feels during processing. Include the words growing, harvesting, packing, transporting, selling.

Science

- Explore the sense of smell. Bring in samples of Italian herbs like oregano, basil and garlic for the students to smell and compare. Explain that these are commonly added to tomato sauce to give it a different flavor.

- Explore the sense of taste. Bring into class other examples of tomato products such as juice, soup, and canned and stewed tomatoes. Have a taste test and sample the different types of tomatoes.

ALLERGY CAUTION

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- Note the tomato went from seed to plant to a solid and juice from solid to liquid. Follow-up with a discussion of the way foods can change forms. You may demonstrate by squishing a tomato or create the same sequence using an apple. Either create a visual or bring in products made with apples (apple seeds, apples, applesauce, apple juice) to show this process from seed to food.

Social Studies

- Look at the label on the jar and find the location of the manufacturer. Explain that most commercial spaghetti sauces made in the United States are made from tomatoes grown in California which is far from Pennsylvania. Show California on the map.

- Present information on processing and transportation for another food product such as apples. A good resource packet called All About Apples is available from Unique Country Products. (See Resource List for description.)

- Compare the process of produce distribution today to 100 years ago. Many people grew and canned their own vegetables and fruits. Produce may have been transported by horse and wagon from a farm to the nearest market. Most produce was only available during harvest time. In the winter apples and potatoes were stored in cold cellars. Fruits were dried. Other vegetables and fruits were packed in jars or cans. Fresh produce was unavailable until the next season. Today fresh produce is available all year round. You may consider having someone visit your class to show how to can food.

Taking It Home

Ask your students to look at home in their kitchen cupboards or refrigerators for spaghetti sauce or pizza sauce. The manufacturer's name and address are required to be on the label. Ask the students to find the state in which the sauce was manufactured and to report the state name in class tomorrow. The next day, ask the students to name the states and then find them on the map. Conclude that most tomatoes that go into spaghetti sauce begin in California but they can be processed in many different places. A grocery store in Pennsylvania may have several different sauces from several different places in the United States, places both far and near.

Resources (See Resource List for descriptions)

More Spaghetti I Say by Rita Golden Gelman
Freddie's Spaghetti by Charlotte Doyle
All About Apples produced by Unique Country Products

8

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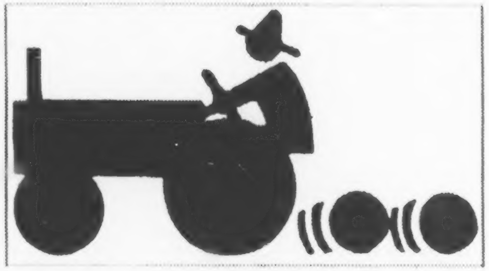
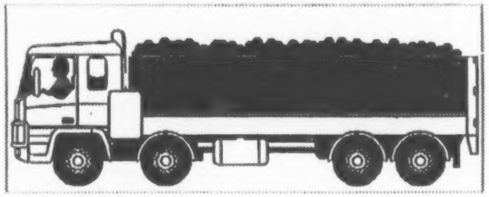
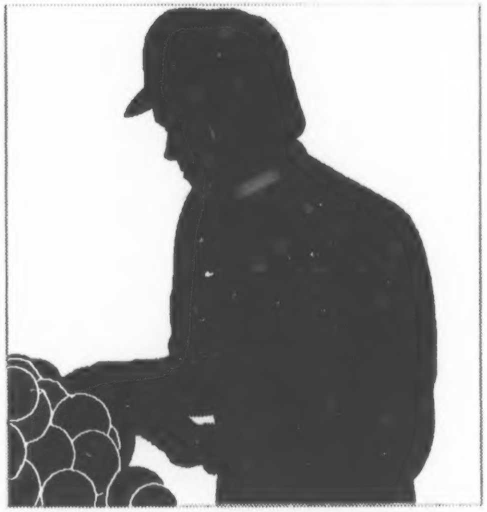


FARMER



TRUCK DRIVER



PROCESS PLANT WORKER

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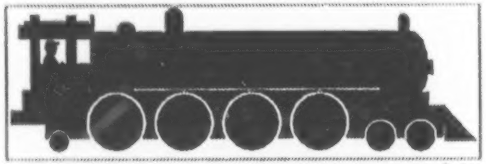
USDA INSPECTOR

PROCESS PLANT WORKER



TRAIN ENGINEER

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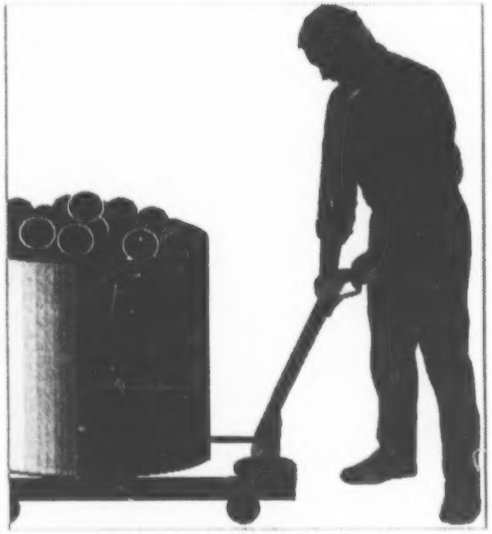
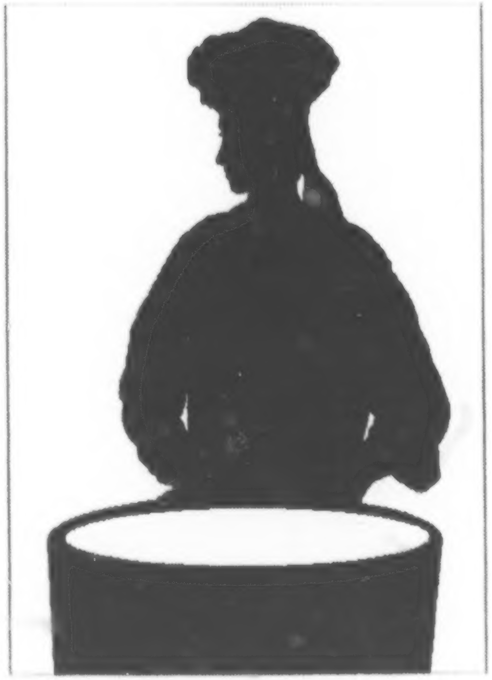
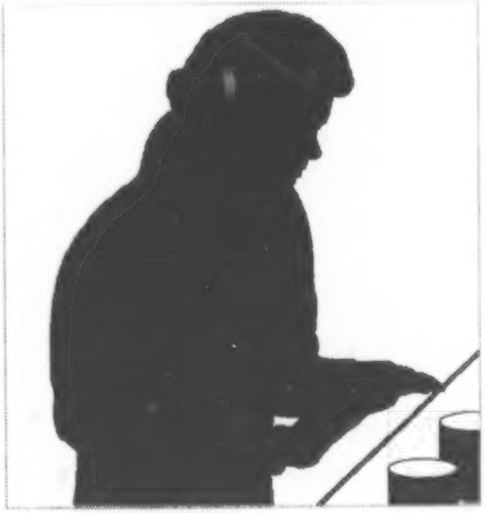


PROCESSING PLANT WORKER



COOK



MANUFACTURER

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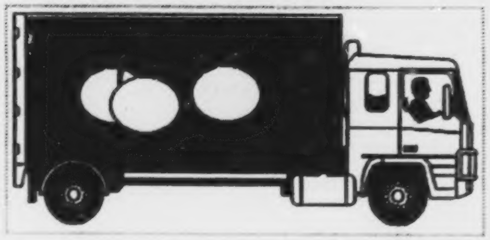
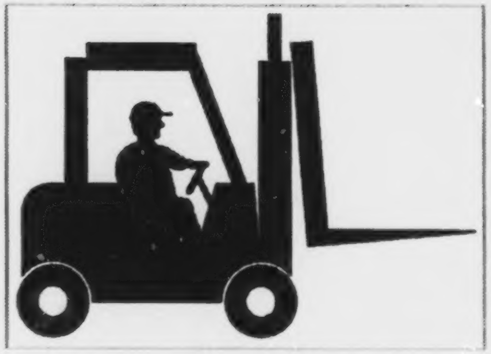
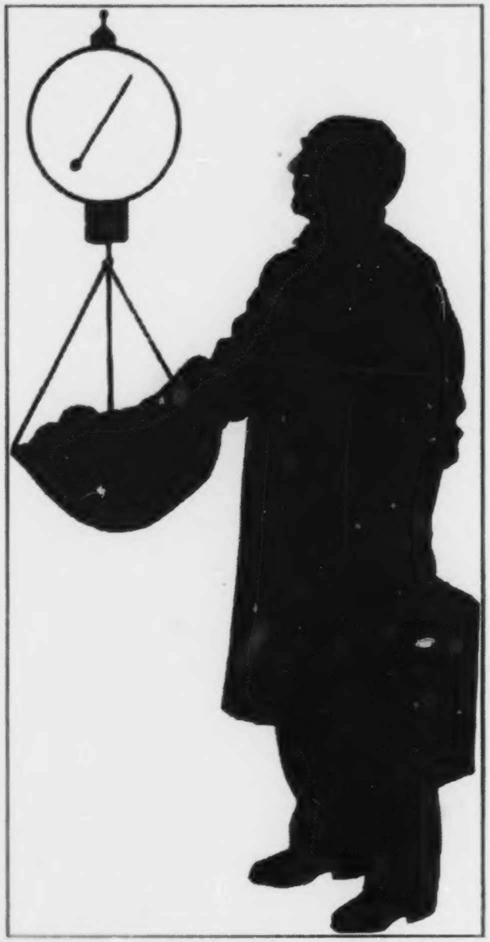


TRUCK DRIVER



WAREHOUSE WORKER



GROCER

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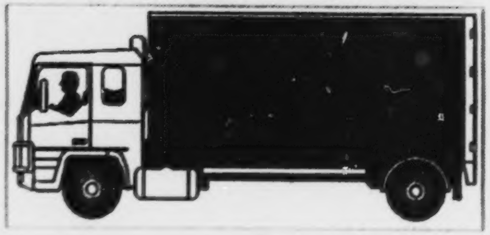
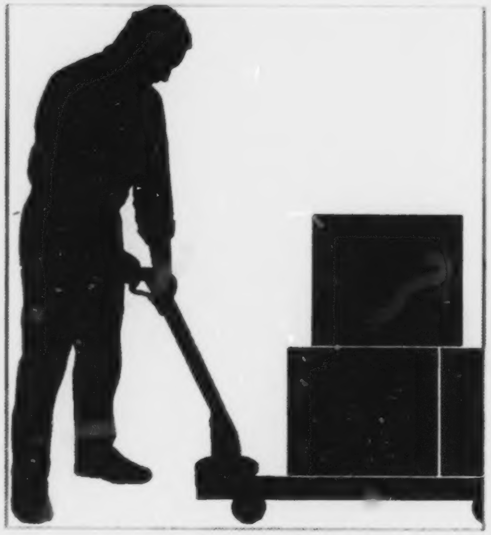
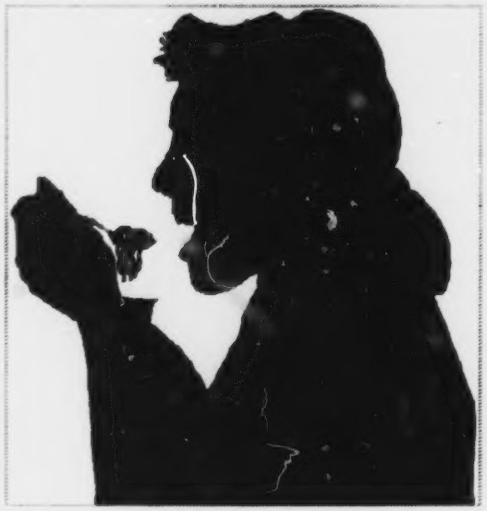


STORE TRUCK DRIVER



GROCER



CUSTOMER

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MATCHING AND GRAPHING VEGETABLES AND FRUITS

Lesson 9

Grades K-1 "5 A Day"
Curriculum Connection: Mathematics/Science
Instructional Time: 20 minutes
Student Vocabulary: fresh, frozen, canned, dried, juice

NUTRITION OVERVIEW

Once a food has been processed, it can be difficult to trace it back to its original form. Students may be better able to meet their "5 A Day" if they understand that processed vegetables and fruits also count.

OBJECTIVES

The student will match pictures and packages of processed vegetables and fruits with pictures of the fresh form.

The student will distinguish vegetables from fruits and create a bar graph to represent class preferences.

The student will articulate favorite forms of vegetables and fruits from a variety of fresh and processed foods.

MATERIALS

vegetable and fruit sorting cards -1 set per group of 3 students (appendix A)
empty packages of processed vegetable and fruit products to match sorting cards
(at least 5 per group.)
shopping bags - 1 per group filled with the sorting cards and packages

INFORMATION FOR TEACHERS

- Research and student observations show that children (and adults) often have difficulty tracing a food back to its agricultural origin. For example, many students are unable to trace the sauce on pizza back to tomatoes.
- Children and some adults have difficulty distinguishing a fruit from a vegetable.

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- The following activity can be done in several ways. You may first choose to sort and match vegetables, then on a second day sort and match fruits, and on a third day sort and match with both. If your students are having difficulty separating vegetables from fruit, it may be best to sort single food groups one at a time before combining the two.

STEPS TO FOLLOW

1. Organize the class into a circle and place six to eight of the vegetable and/or fruit sorting cards face up in front of the students. Review the vegetables and/or fruits pictured on the sorting cards. Explain that the sorting cards show mostly fresh forms. Ask students to name other forms in which we eat vegetables and fruits (canned, frozen, juiced, and dried). Direct students' attention to the empty fruit containers brought in from home. Match some of the empty fruit packages with the original fresh fruit pictured on the fruit sorting cards. Repeat this using the empty vegetable packages.

2. The students will now practice this activity in groups. Divide the class into groups of three; distribute to each group one shopping bag that contains a set of five vegetable and fruit sorting cards with matching empty vegetable and fruit packages inside. Instruct students to first pull out the sorting cards. Direct the groups to match the vegetable and fruit packages to the original fresh fruit as seen on the sorting cards. (Pictures and words printed on the food labels will help the student match the packaged product to the sorting card.)

3. Now, have the students sort the vegetable and fruit packages in different ways. Examples: sort them by colors, shapes, sizes, origin (original fresh form), beginning letter of word, or packaged forms (frozen, canned, juiced, dried).

4. Remind students that eating at least five vegetables and fruits every day is important for good health. Emphasize that there are many vegetables and fruits from which to choose - many more than the number found on the sorting cards. Trying new and different vegetables and fruits can be fun.

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5. To graph, post the sorting cards used in this lesson on the chalkboard. Invite students to come to the board and place a check mark, using chalk, next to their favorite vegetable or fruit. Create a bar graph of the students' vegetable and fruit preferences by lining up the cards one after another on the board. Ask students to conclude which fruits and which vegetables are liked most by the class members.

EXTENSIONS

Bulletin Board Idea

Collect pictures or use packages of fresh vegetables and fruits in processed forms. Use string to connect related sets. For example, connect a picture of a fresh tomato to a jar of sauce to a plate of spaghetti with sauce.

Careers

Food Scientists
Food Processors

Class Project

ALLERGY CAUTION!

- Make applesauce from fresh apples in a crockpot or serve apple juice for snack.

- Put together a list of all the processed foods made from a specified vegetable and fruit. For example, tomato - sauce, soup, paste, pizza, ketchup, spaghetti, etc. Cut pictures out of magazines for each processed food. Put the pictures on the board and have students vote for their favorite (tomato) form. Graph class preferences.

Further Investigations

Math

- Get the school lunch menu for one month. Set up two columns on a piece of paper, one column titled vegetables, the other fruits. Read each day's menu to the students. Instruct the students to listen for the names of vegetables and fruits. When the students hear a name of a vegetable or fruit they should place a check mark in the proper column. Graph the number of vegetables and fruits served at lunch for the month. Discuss the results. Ask if there were more vegetables than fruits, or more fruits than vegetables served. You can take this further by graphing the number of different vegetables and fruits offered, or the different forms in which they were served.

Taking It Home

Students should practice classifying foods at home. After buying groceries, as the foods come out of the grocery bag, the student, with a family member, could name the foods and state the form of the vegetables and fruits.

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A TO Z IS GOOD FOR __________!

Lesson 10

Grades K-1 "5 A Day"
Curriculum Connection: Language Arts
Instructional Time: 20 minutes
Student Vocabulary: alphabet, variety

NUTRITION OVERVIEW

The alphabet can be used as a tool to illustrate the variety of vegetables and fruits. Vegetables and fruits can be named for almost all of the letters in the alphabet.

OBJECTIVES

The student will name the initial letter of vegetables and fruits in an alphabet book and state its sound.

The student will use the alphabet as an organizing tool to identify a wide variety of vegetables and fruits available to eat.

MATERIALS

"A to Z is good for ____" book (at end of this lesson)
crayons, pencils
"5 A Day is Easy to Do" alphabetized list of vegetables and fruits (at end of this lesson)

INFORMATION FOR TEACHERS

- For a wide variety of vegetables and fruits, refer to the reference list provided: "5 A Day is Easy to Do."
- Before you begin the lesson, photocopy the "A to Z" books front to back, collate, fold, and staple the books. Two sets of "A to Z" books have been provided. One is a front to back copy to be used simply as a guide for assembling the book. The other is a single sided copy to be used for photocopying.

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STEPS TO FOLLOW

1. Ask students how many letters are in the alphabet. Ask students how many vegetables and fruits they should eat each day. Reinforce the concept that everyone should eat a combination of five vegetables and fruits each day. Ask students if they think there are at least 26 different vegetables and fruits - one for each letter of the alphabet. ask

2. Students will write and color their *"A to Z is Good for ______"* books, putting their names in the blank. Explain that for almost every letter of the alphabet, there is at least one vegetable and/or fruit and for some letters of the alphabet there are many. Also explain that this book is a limited representation of the abundance of vegetables and fruits.

3. You may want to go through the book page by page with the students. Ask about letters, sounds, and if they are familiar with the vegetable or fruit. Students should be encouraged to give additional ideas for each letter. Ask them which letter has the longest list of vegetables and fruits. Note that some varieties of fruits come in several colors. For example, apples can be red, green or yellow. Let the students color the fruits the way they see them. ask

4. When the books are completed, let the students take their books home to share. Challenge the students to find vegetables and fruits beginning with the following letters: D, F, Q, and Y, or they can make up silly or fictitious names for these letters.

EXTENSIONS

Bulletin Board Idea
Collect pictures of each vegetable and fruit in the alphabetical list of vegetables and fruits in the introduction to this unit. Post the picture and name of each on the bulletin board or around the room.

Food Service Cooperation
Ask the Food Service Director to talk to the class about how the school serves "ABC" vegetables and fruits. For example, apples can be served fresh, as applesauce, as juice, etc.

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Further Investigation

Art

Assign each student the name of a vegetable or fruit. Instruct the student to make a collage for this vegetable or fruit, using pictures from a magazine and/or drawing it.

Language Arts

- Use the sorting cards to put the vegetables and fruits in alphabetical order.
- Go through the alphabet asking students to name other vegetables and fruits which start with the same letter. During recess invite the children to play jump rope to the rhyme..."A - My name is Alice, my friend's name is Alvin, we live in Allentown, and we sell Asparagus" and so on.
- Let the students make their own alphabet books using the alphabetical list of vegetables and fruits provided in the unit introduction. Allow them to make up silly and fictitious names for some of the letters, such as X, Q and Z.

Music

Create a list of nursery rhymes or children's songs that have vegetables and fruits in them. Sing the songs in class and when a vegetable or fruit is mentioned the students should give a high-5 in the air to promote "5 A Day." This would be a good place to show the five minute "5 A Day" video if the students have not seen it yet. This video is included with the curriculum package.

Taking it Home

Assign each student the name of a vegetable or fruit. Instruct the student to identify this vegetable or fruit at the grocery store. It may be helpful if the student first cuts out pictures or draws the vegetable or fruit in class.

Taste Test

Ask a "5 A Day" participating grocer to visit your classroom and bring exotic and unusual vegetables and fruits for tasting. Discuss the pronunciation of each vegetable and fruit. Note: it may be better to offer the vegetables before the sweeter tasting fruits.

ALLERGY CAUTION!

Resources (See Resource List for description)
Eating the Alphabet: Fruits and Vegetables from A to Z by Lois Ehlert
Pierrot's ABC Garden by Anita Lobel

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Funded by a grant from USDA, NET Program.

5 A DAY IS EASY TO DO

Look at all the vegetables and fruits you can choose!

	Vegetables	**Fruits**
A	alfalfa sprouts artichoke asparagus	acerola apple applesauce apricot atemoya avocado
B	bamboo shoots beets beet greens bell pepper broccoli Brussels sprouts	banana blackberries blueberries boinato boysenberries breadfruit
C	cabbage carrots cauliflower celery chicory coleslaw collards corn cucumber	cantaloupe carambola (star fruit) carissa casaba melon cherimoya cherries crabapples cranberries cranberry sauce currants
D	dandelion grass	dates
E	eggplant endive escarole	elderberries
F		figs

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	Vegetables	Fruits
G	green beans green peas green peppers	gooseberries grapefruit grapes groundberries guava
H	hominy	honeydew melon
I	iceberg lettuce	
J	Jerusalem artichoke	jackfruit Java plum jicama jujube
K	kale kohlrabi	kiwifruit kumquat
L	leaf lettuce leeks lotus root lupines	lemon lime loganberries longans lychees
M	mushrooms mustard greens	mammy apples mandarin oranges mangos melons mulberries
N		nectarines
O	okra onion	oheloberries olives oranges

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Funded by a grant from USDA, NET Program.

	Vegetables	**Fruits**
P	parsnips	papaya passion fruit paw paw peaches pear persimmon pineapple pitanga plantain plums pomegranate prickly pear prunes pummelo
Q		quince
R	radicchio radish romaine lettuce rutabaga	raisins raspberries rhubarb rose apple roselle
S	sauerkraut seaweed spinach squash sweet potato Swiss chard succotash	sapodilla sapote sowsop strawberries sugar apple
T	taro tomatoes turnip greens turnips	tamarind tangerines
U		uglifruit
V	vine spinach	

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Funded by a grant from USDA, NET Program.

	Vegetables	Fruits
W	water chestnuts watercress wax beans wax gourd	watermelon
Y	yams	
Z	zucchini	

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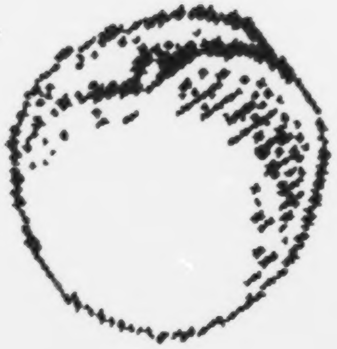
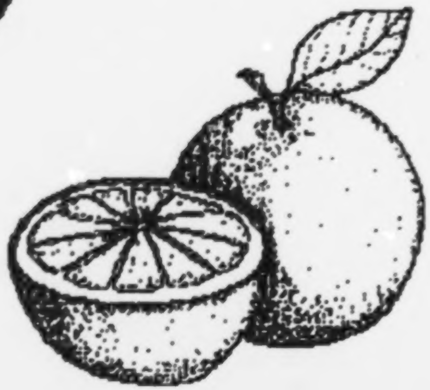
N



___ectarine

O



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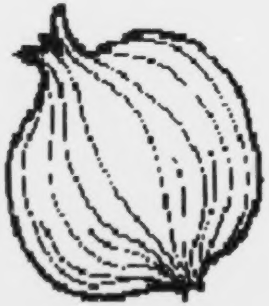

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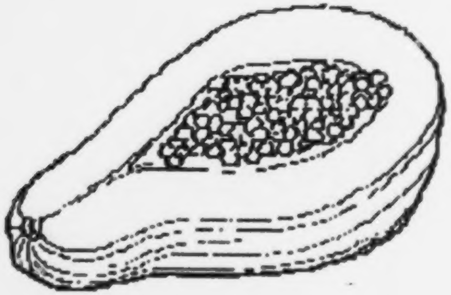
P



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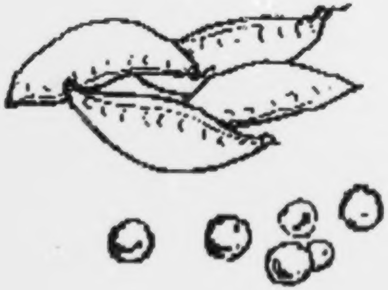

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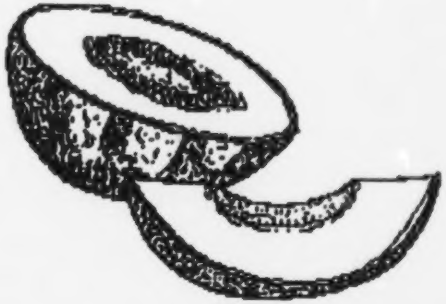
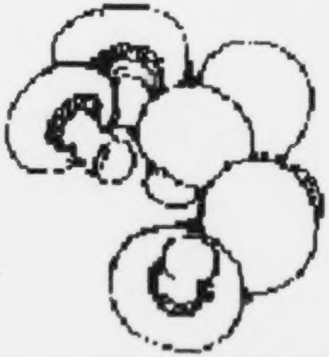
M

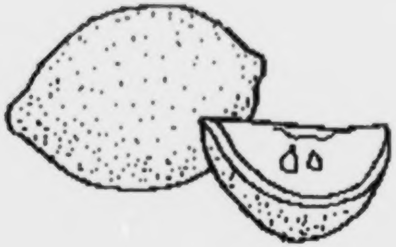


___elon

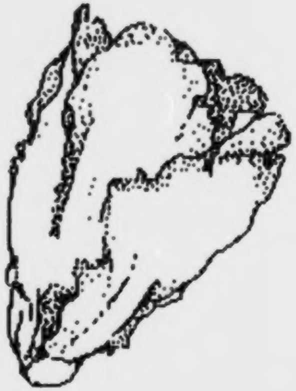


___ushroom

L



___emon



___ettuce

Q

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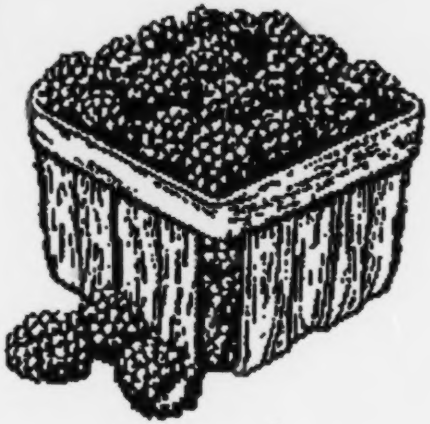
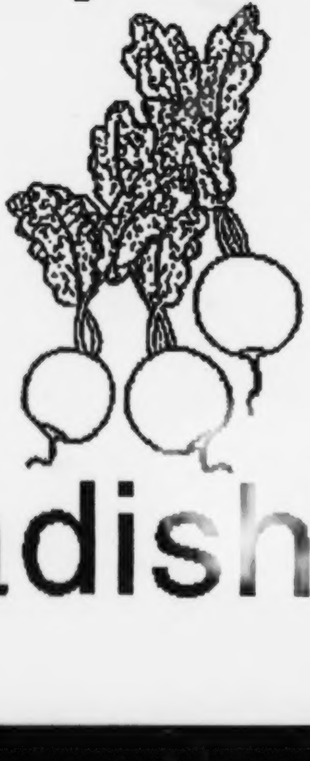
eat.

R

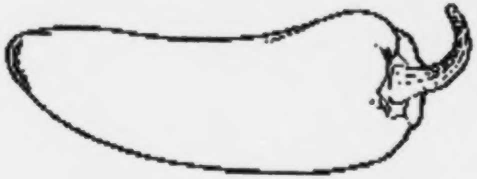


__aspberry



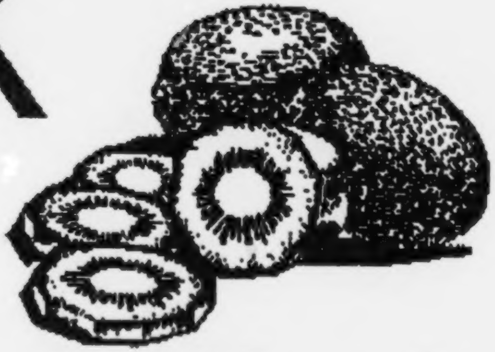
__adishes

J



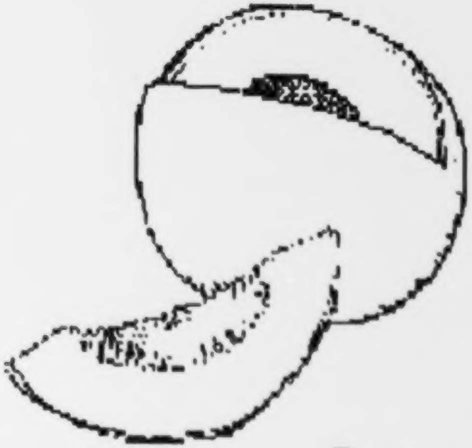
__alapeño

K



__iwifruit

H

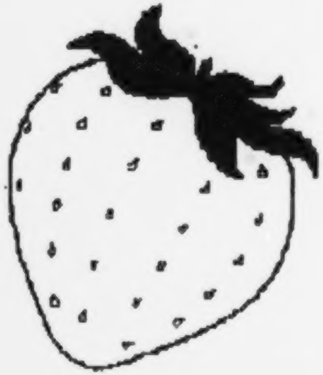


__oneydew

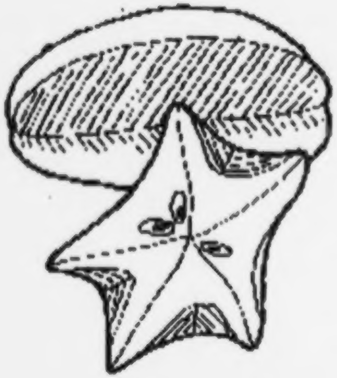
I

___ like
fruits and
vegetables.

S

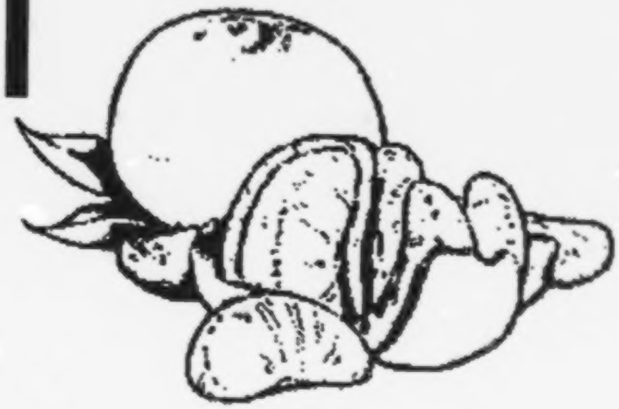


__trawberry

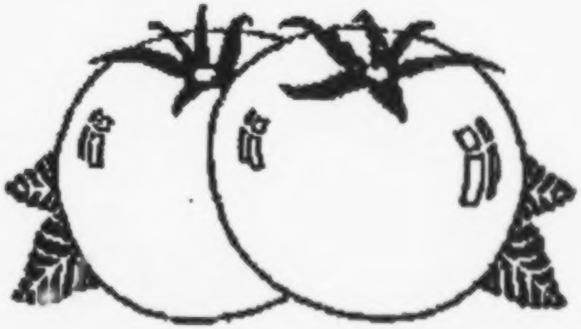


__tarfruit

T

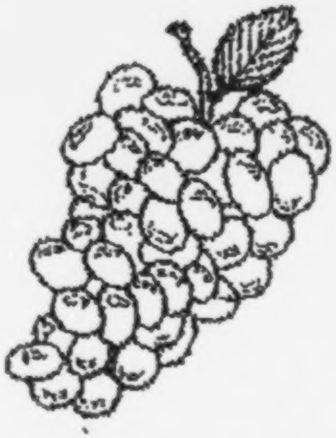


___angerine

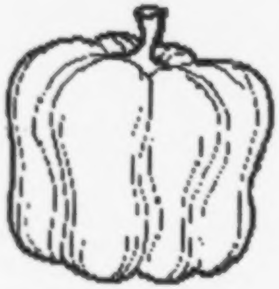


___omato

G



___rapes



___reen
pepper

F

Eat

___ive a day

for

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U

More is

O.K.

Less is

___ncool.

V

___eggies and

fruits from

morning

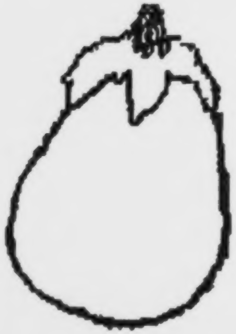
till

night.

D

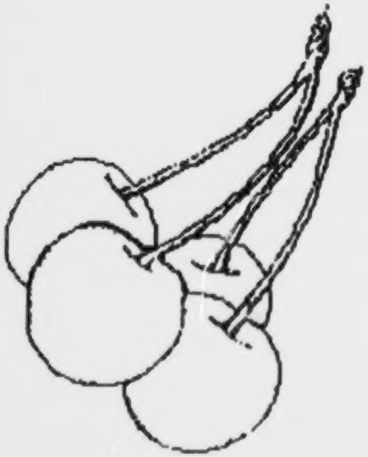
5 - a ___ay.

E

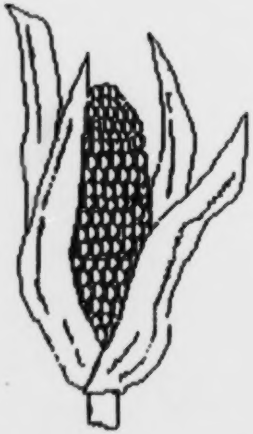


___ggplant

C



___herry



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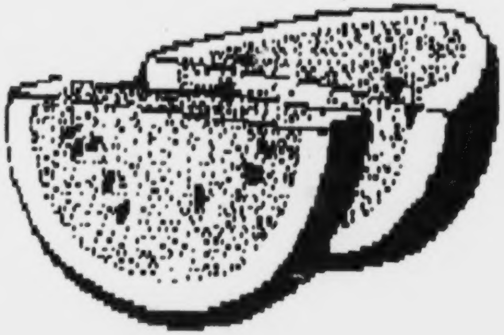
W

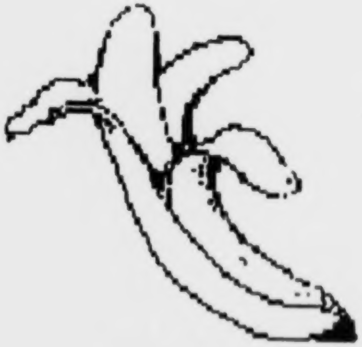


___atermelon

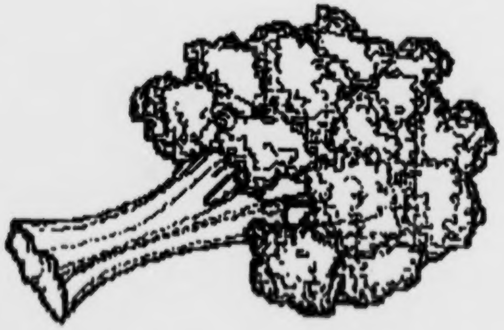
X

"____" marks
the
spot that
my taste buds
like a lot.

B

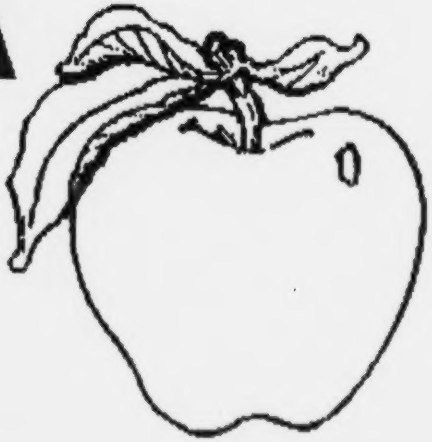


___anana

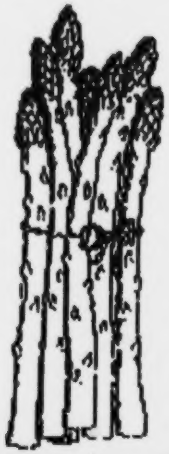


___roccoli

A



___pple

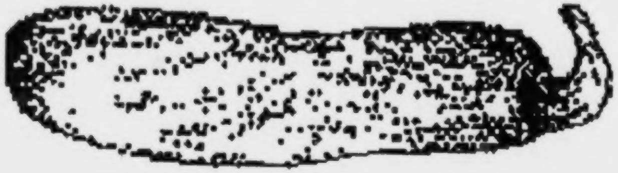


___sparagus

Y

Say ___es
to fruits and
vegetables.

Z



___ucchini

A K N A H S W B O J T V

Eat

5 A Day

and you're

doing it right !

A to Z

is

Good for

______________ !

Z C E B G I M E R L P A

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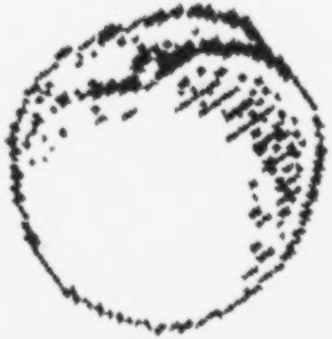
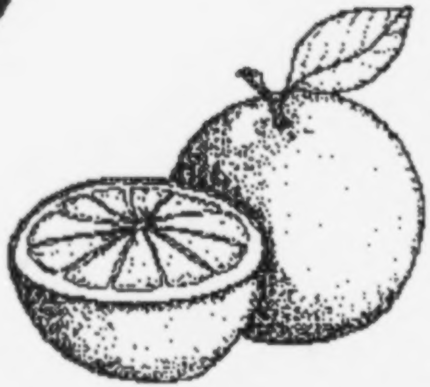
N

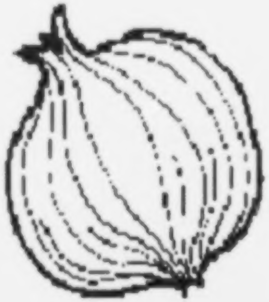


___ectarine

O

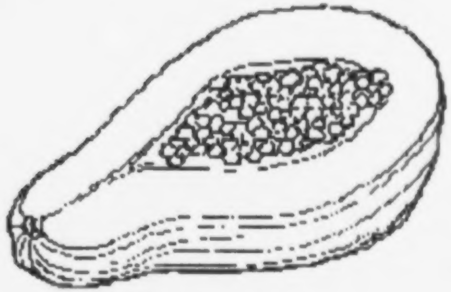


___range



___nion

P



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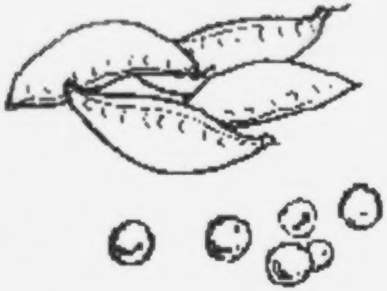
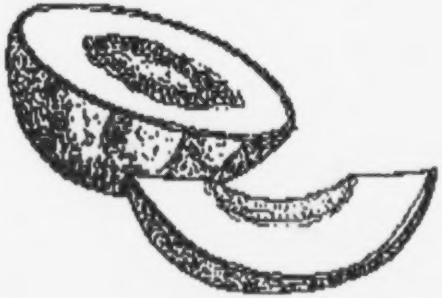
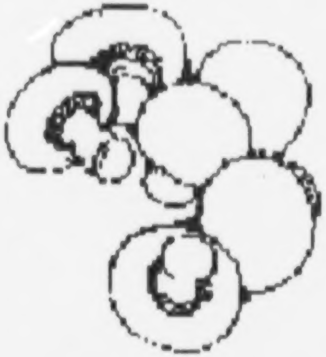


___eas

M

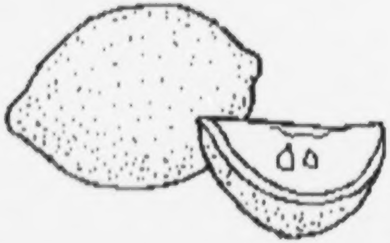


___elon

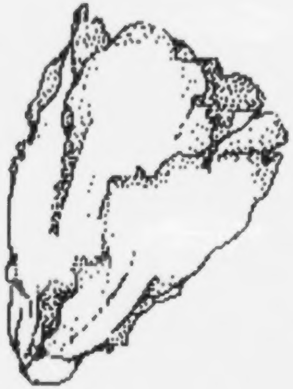


___ushroom

L



___emon



___ettuce

Q

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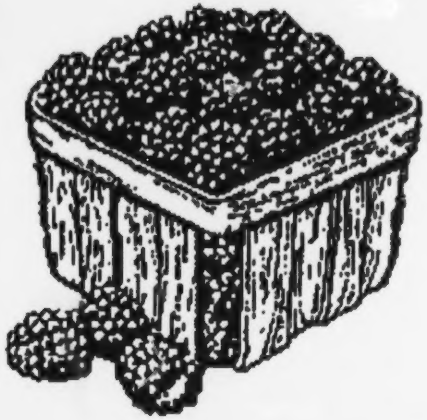
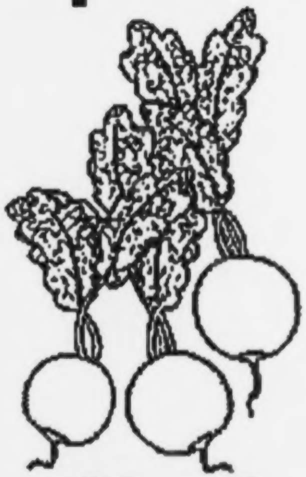
to

eat.

R



__aspberry



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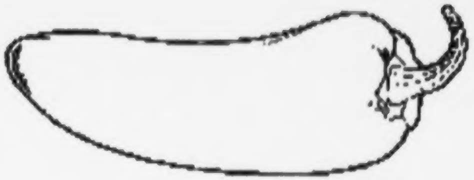
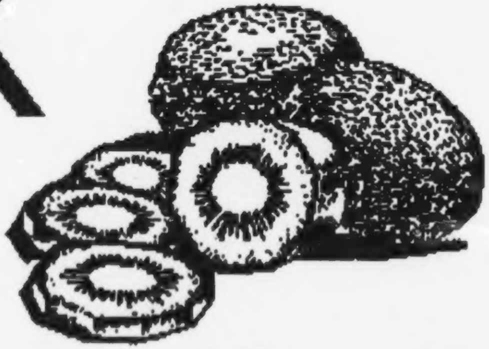
J



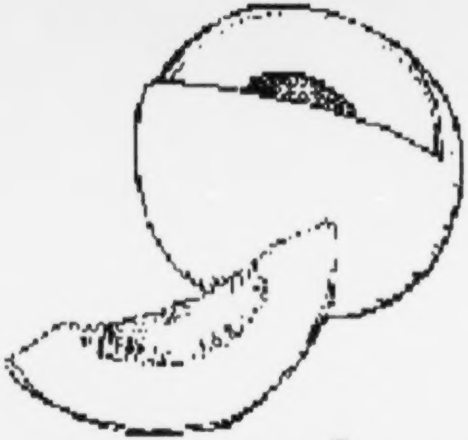
__alapeño

K



__iwifruit

H



__oneydew

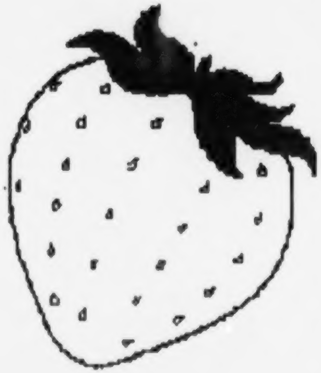
I

___ like

fruits and

vegetables.

S



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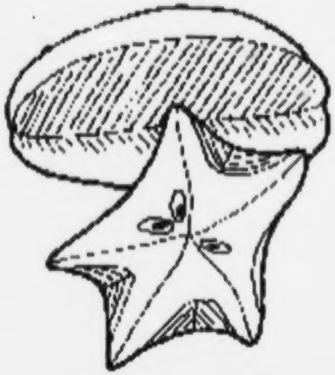
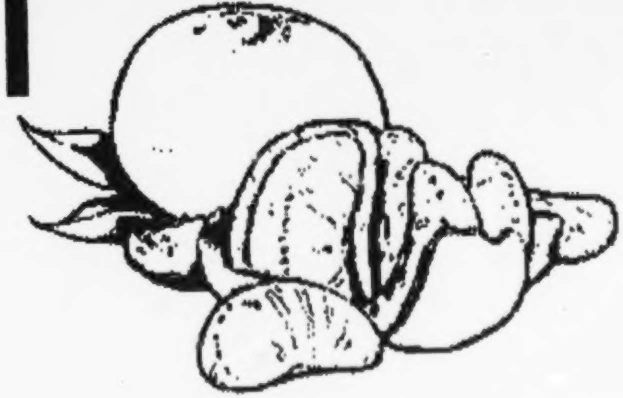
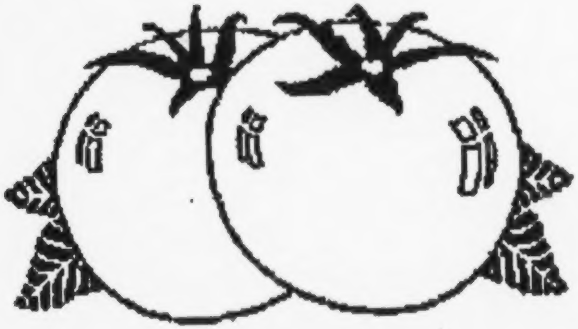


__tarfruit

T

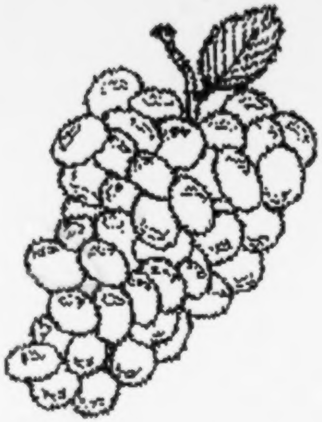


___angerine

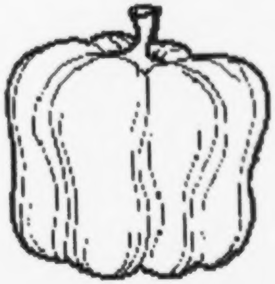


___omato

G



___rapes



___reen
pepper

F

Eat

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for

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U

More is

O.K.

Less is

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V

__eggies and

fruits from

morning

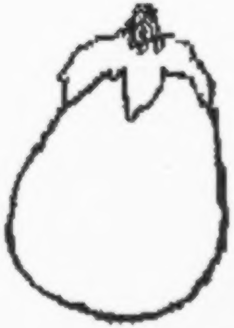
till

night.

D

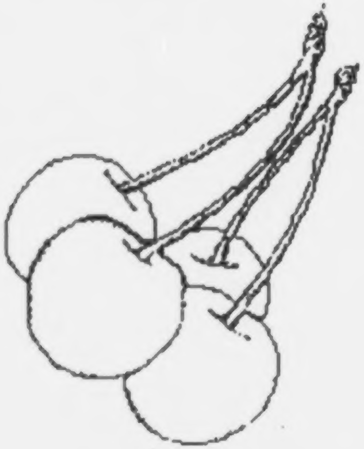
5 - a __ay.

E

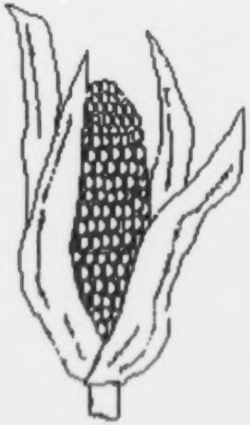


__ggplant

C



___herry



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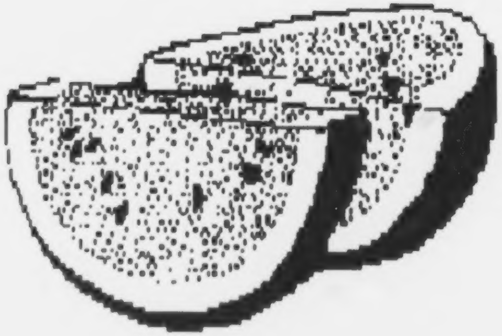
W



___atermelon

X

"____" marks

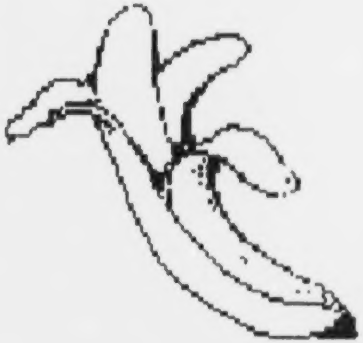
the

spot that

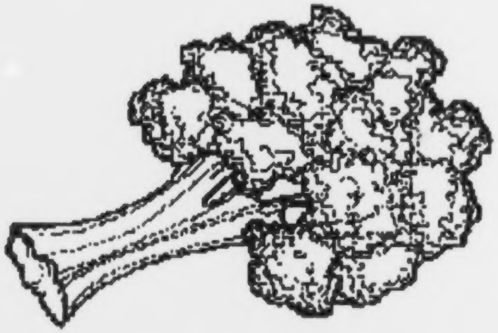
my taste buds

like a lot.

B

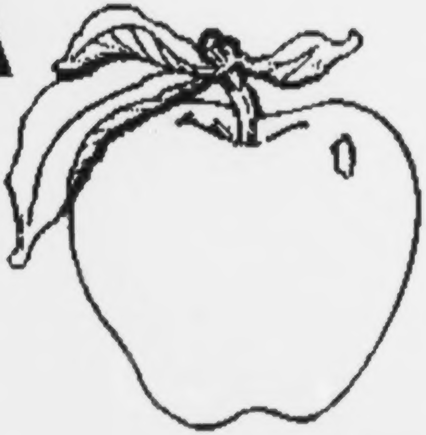


___anana

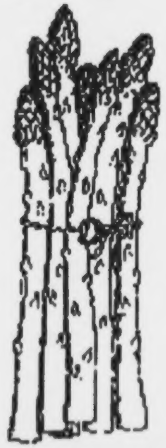


___roccoli

A



___pple

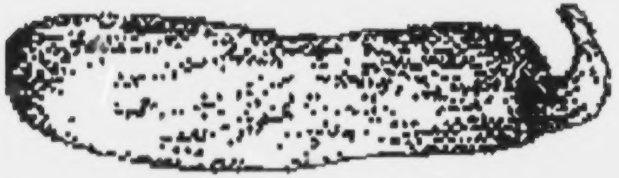


___sparagus

Y

Say ___es
to fruits and
vegetables.

Z



___ucchini

A K N A H S W B O J T V

Eat

5 A Day

and you're

doing it right !

A to Z

is

Good for

____________________ !

Z C E B G I M E R L P A

Produced by the Penn State Nutrition Center for the Pennsylvania Department of Education, 1993. Funded by a grant from USDA, NET Program. Grades K-1

“5 A DAY”
KINDERGARTEN AND GRADE 1

APPENDIX A
VEGETABLE AND FRUIT SORTING CARDS

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

INSTRUCTIONS FOR USING THE VEGETABLE AND FRUIT SORTING CARDS

The Vegetable and Fruit Sorting Cards are located on the next page.

The sorting cards picture a variety of vegetables and fruits. The sorting cards are used in the following lessons but can be used in other lessons as a visual reinforcement:

Lesson 2 - "A Handy Rule"
Lesson 3 - "Winning Combinations"
Lesson 9 - "Matching and Graphing Vegetables and Fruits"

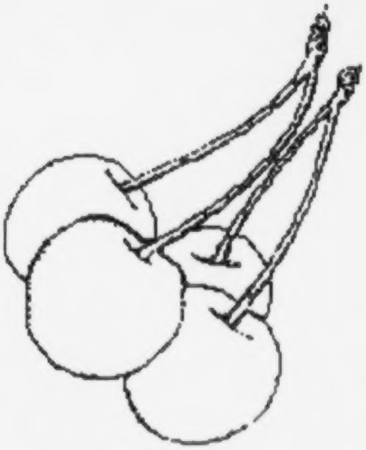
The cards are two sided. On one side is a picture of the vegetable or fruit. The other side lists specific information about that particular vegetable or fruit. The state of Pennsylvania is shown if the food can be grown in the state. If the vegetable or fruit is a high source of vitamins A and C, and a high or good source of dietary fiber, it is listed. A "high source" of a nutrient is defined as 20%DV (Daily Value) or more. A "good source" is between 10 - 19%DV. Many vegetables and fruits provide these beneficial nutrients, some in amounts below the "high" and "good source" criteria. Therefore, some vegetable and fruit sorting cards do not list specific nutrients on the back. Keep in mind that eating a wide variety of vegetables and fruits is healthful no matter what combination you choose.

To make the sorting cards, photocopy the pictures and the matching descriptors front to back. Copy as many sets as you need, one set per student or per groups of students. NOTE: In Lesson 2, to play the concentration game you need two sets of matching cards per each group of students.

The broken lines on the cards indicate where to cut, but you'll need to trim them to make each set of cards uniform in size.

There are more sorting cards than you can effectively use with a class at one time. We provided this many so that you can pick and choose the number and the foods that are appropriate for your class. You may want to color the cards to add to their aesthetic appeal. Laminating them will add years of usefulness.

The cards can be used in many ways. One way is to have the student simply name the vegetable or fruit. Other ideas include sorting by vegetable/fruit, color, shape, first letter of the alphabet, or means of growth (vine, bush, tree, etc.). We encourage you to try other creative ways to use the sorting cards.



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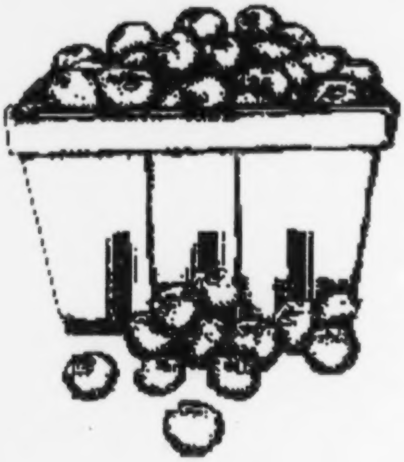

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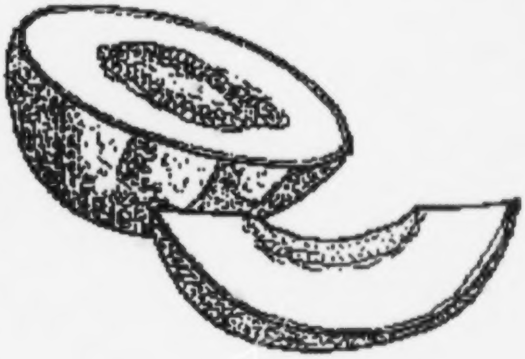

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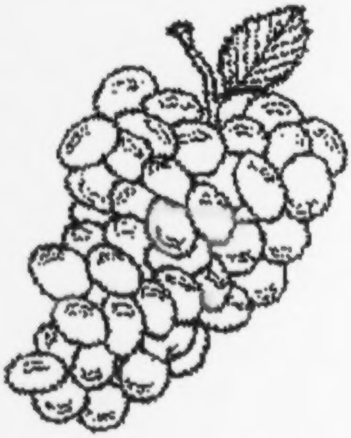

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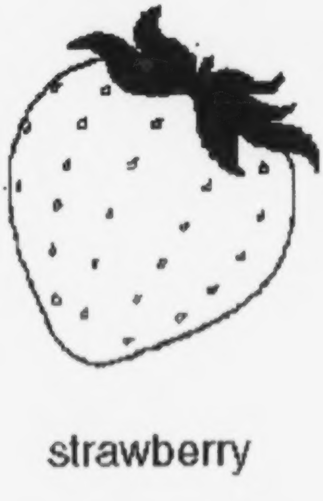
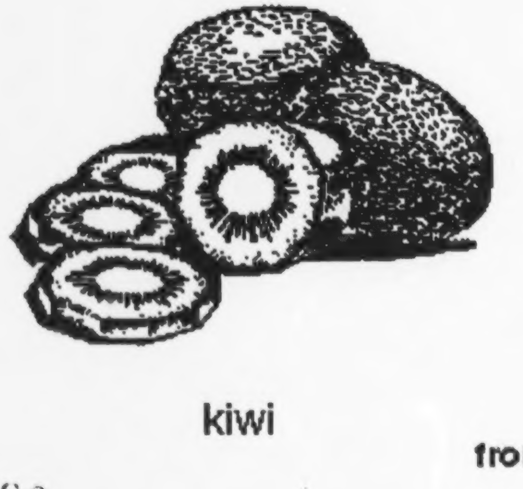


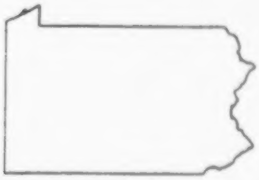
strawberry



kiwi

front 1

fiber



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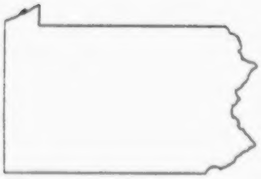
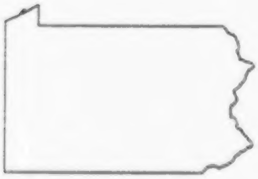
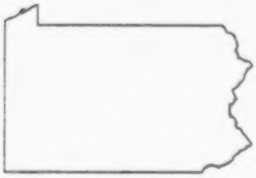




vitamin A
vitamin C

vitamin C
fiber



vitamin C
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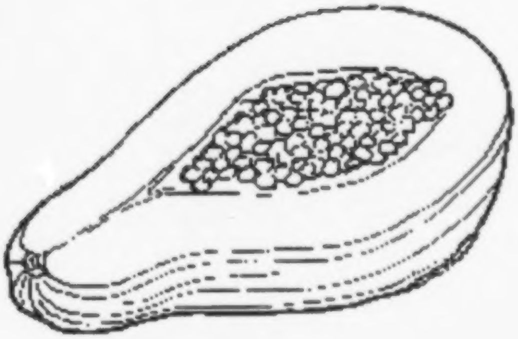

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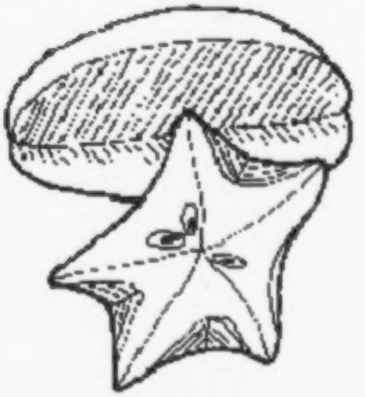

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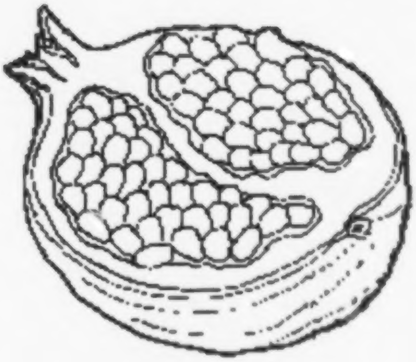

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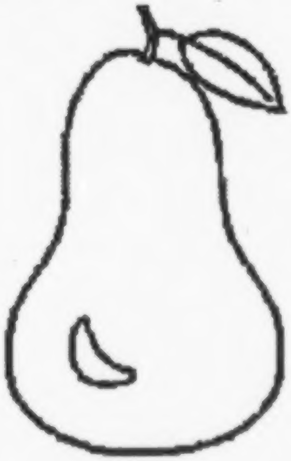

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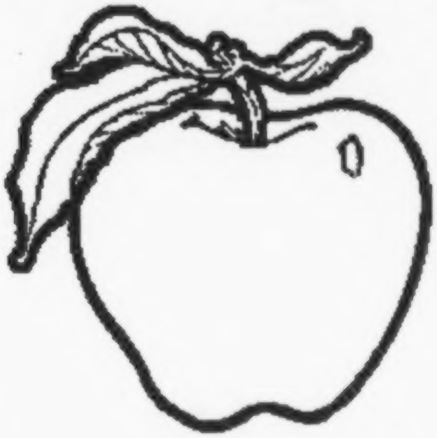

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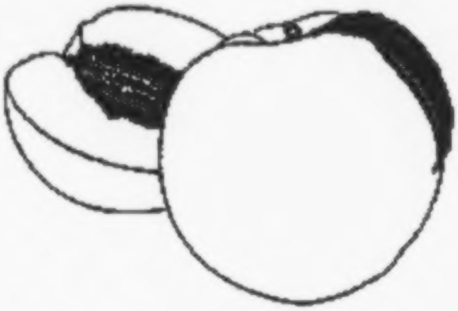

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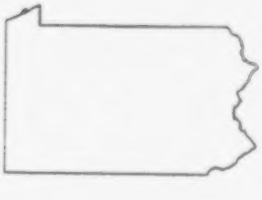
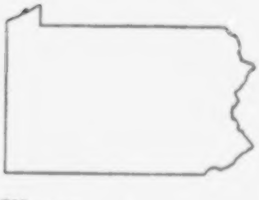
fiber





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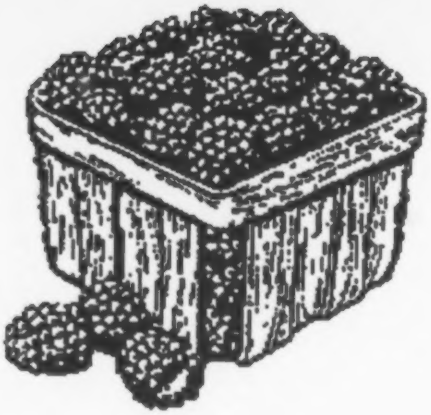

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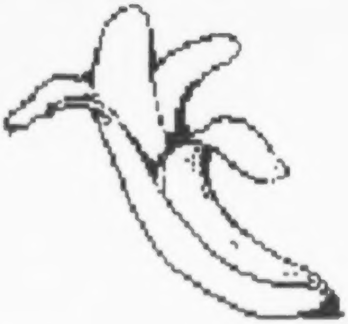

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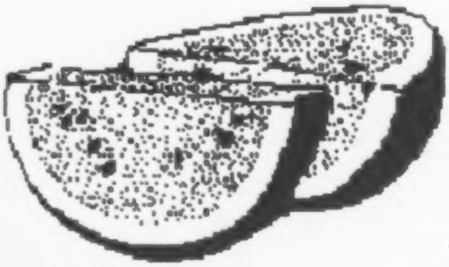

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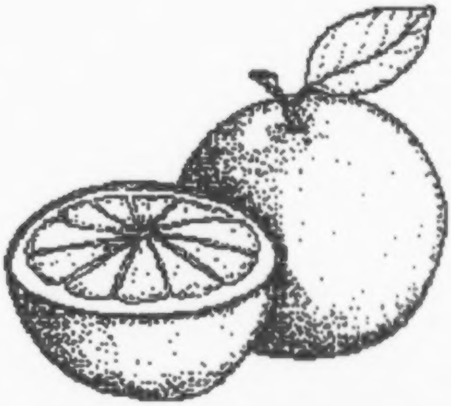

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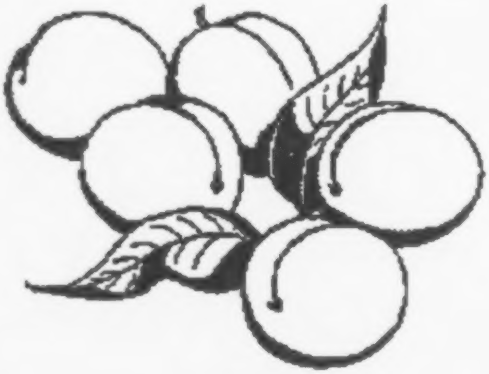

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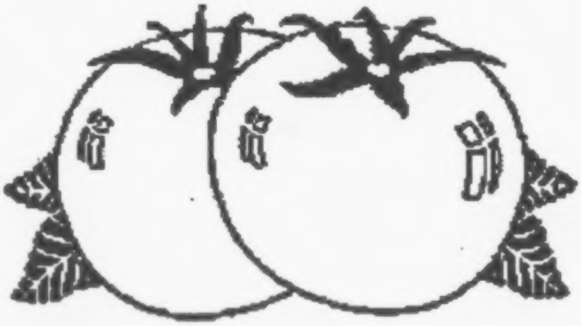
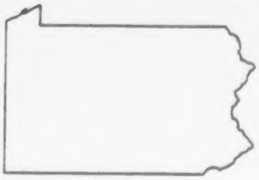


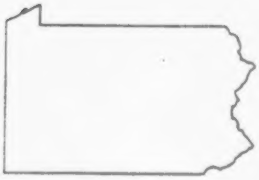
tomato

fiber



fiber

vitamin C
fiber



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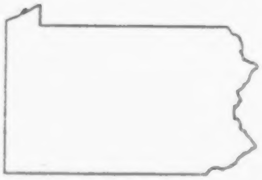
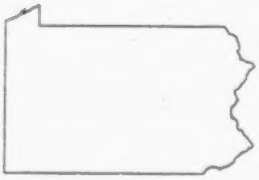
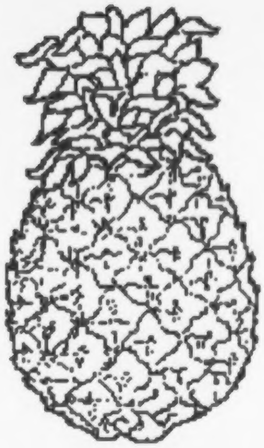


vitamin C



vitamin A
vitamin C



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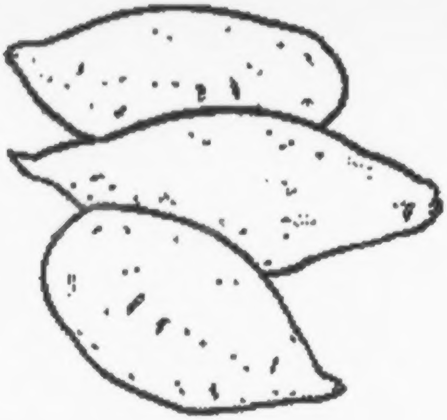

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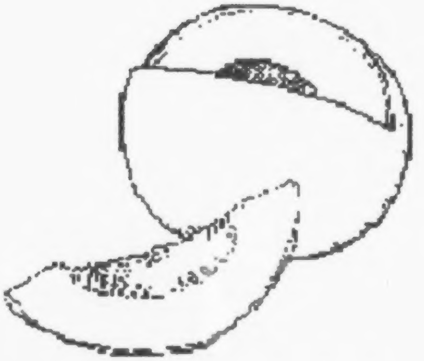

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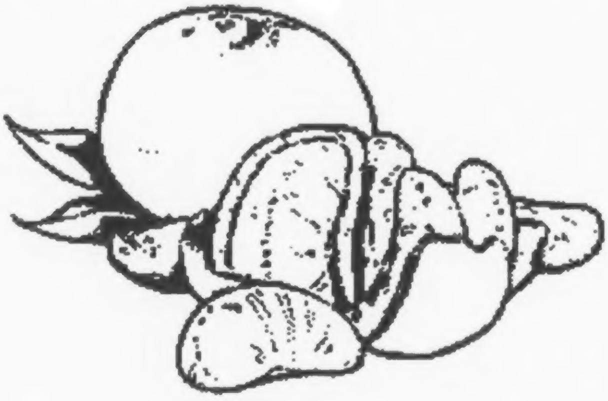

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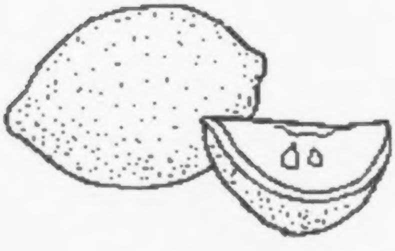

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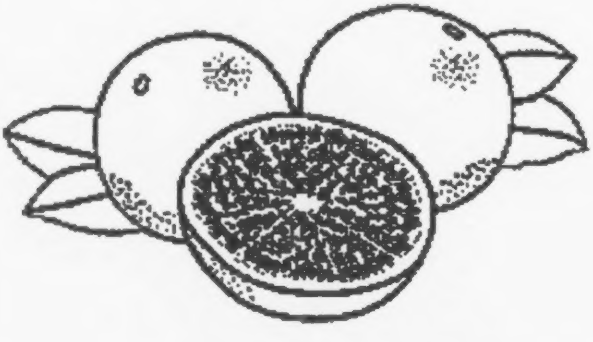

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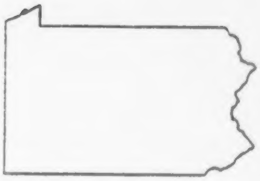
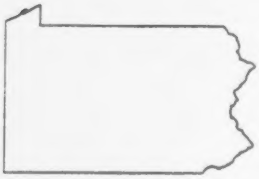


vitamin A
fiber

vitamin C

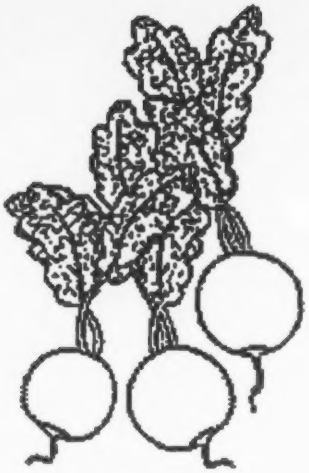


vitamin C

vitamin C

vitamin C
fiber

167



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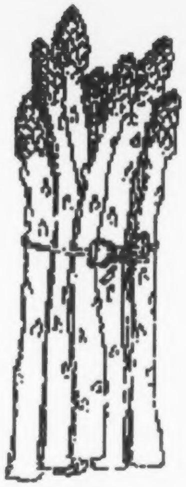

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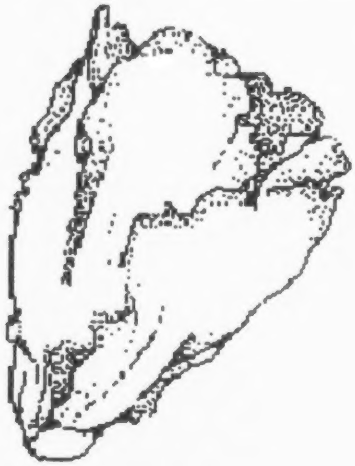
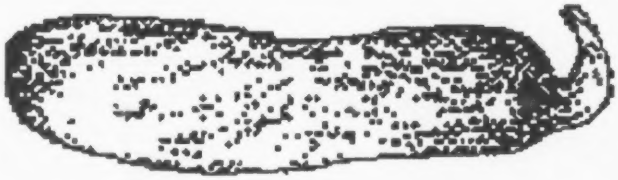
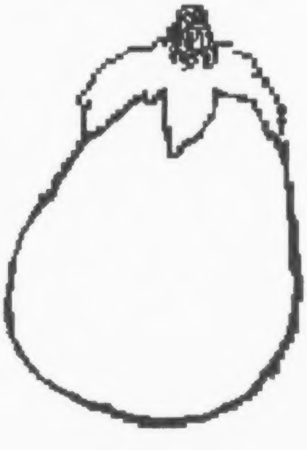


Romaine lettuce



zucchini



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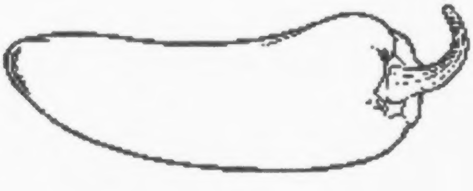
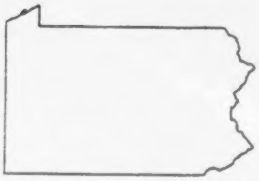
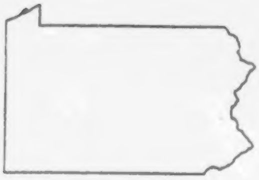
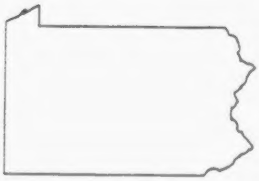


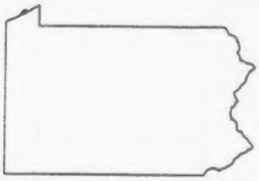
jalapẽno

front 5

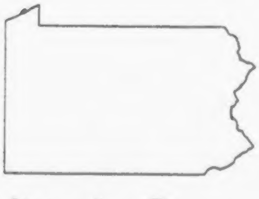








vitamin A



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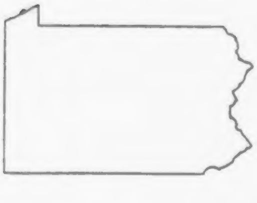

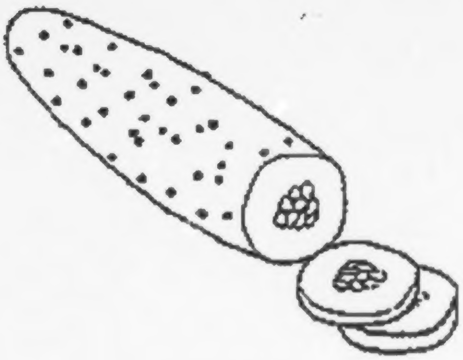

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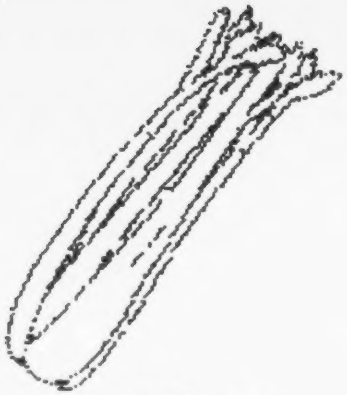

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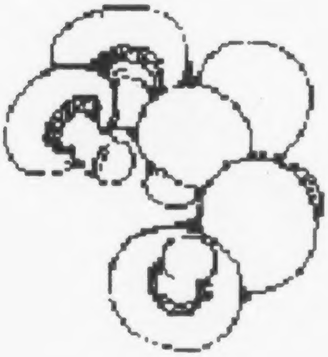

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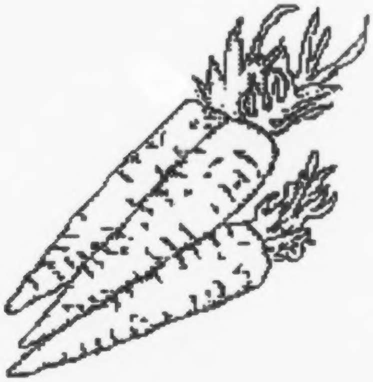

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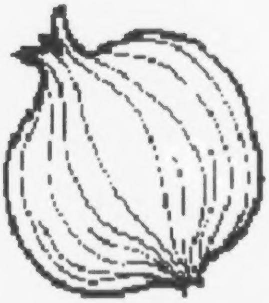
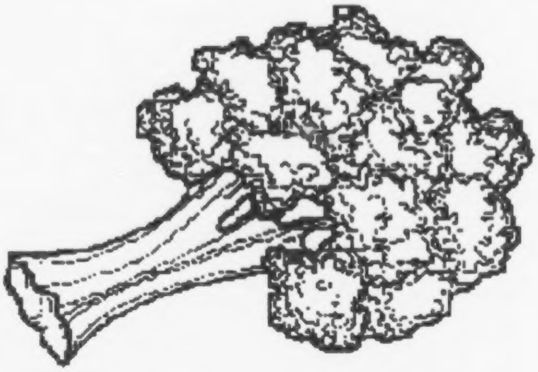


onion



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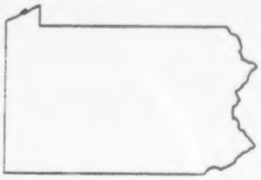
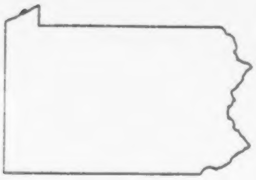
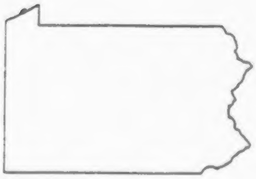
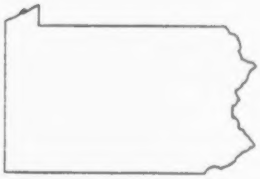


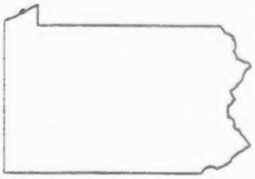


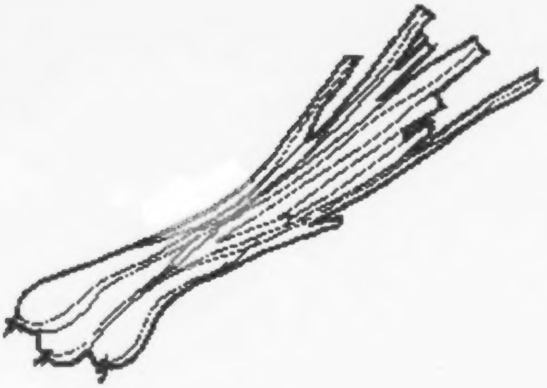
vitamin A
fiber



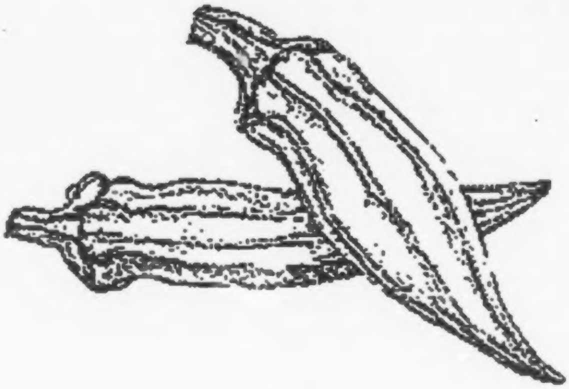


vitamin C





green onion



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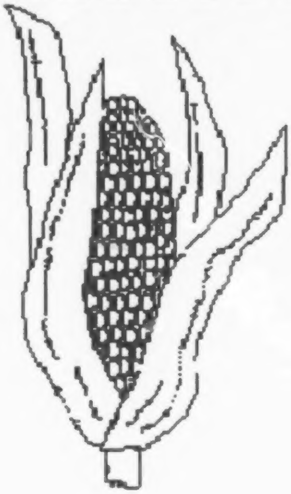

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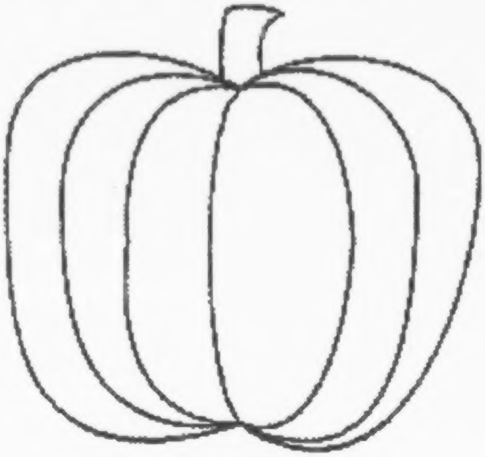

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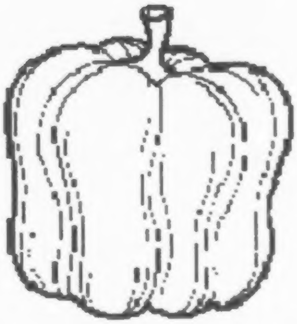

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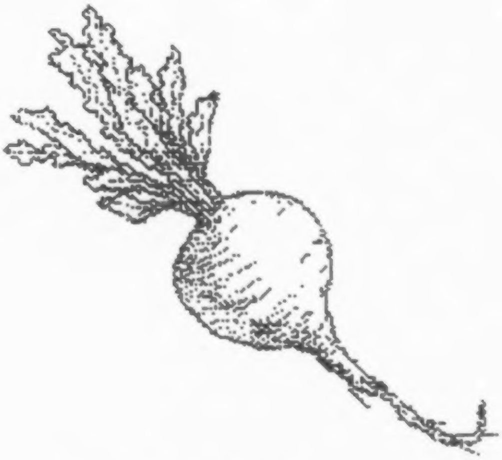
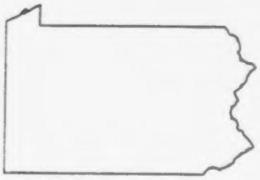
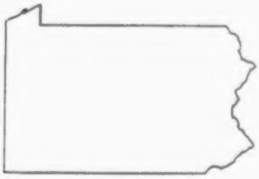
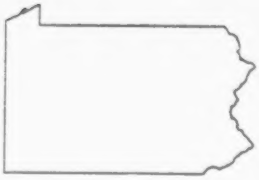


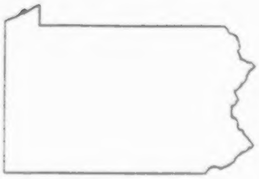
turnip



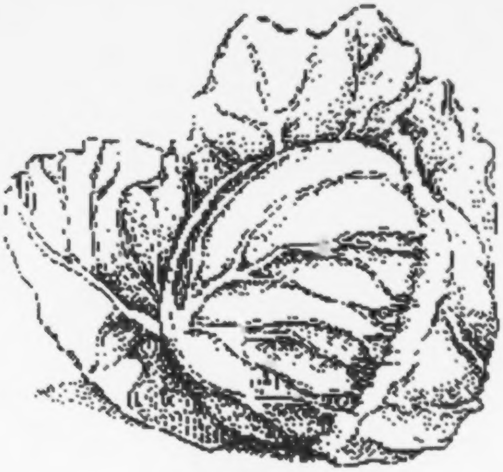


vitamin A





vitamin C



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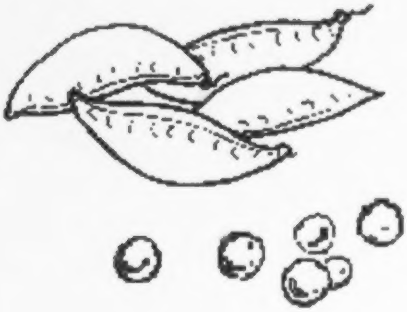
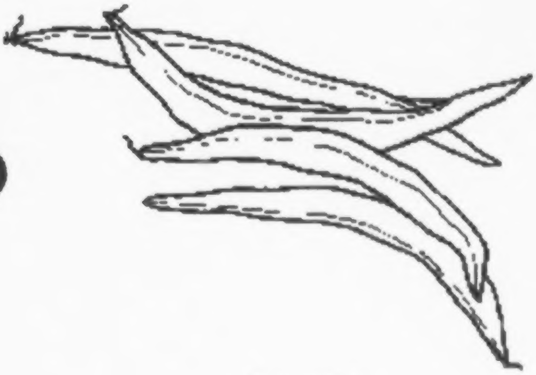


peas



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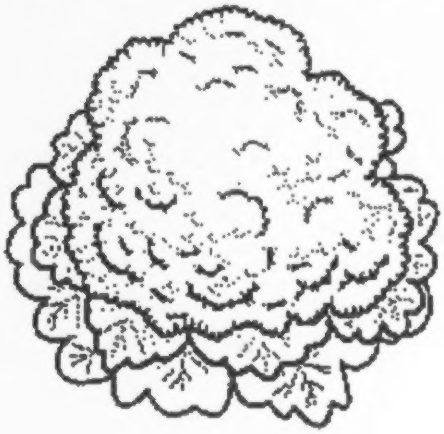

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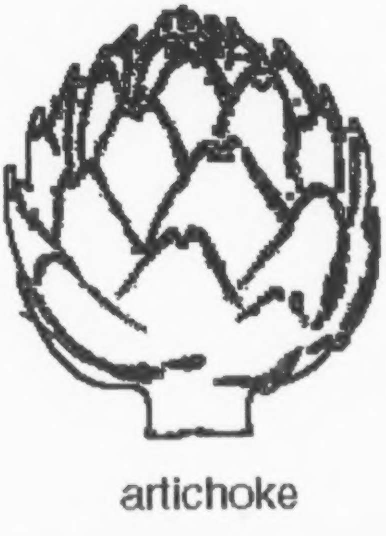
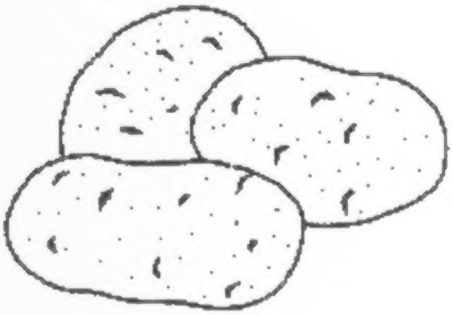


artichoke



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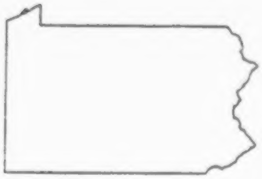

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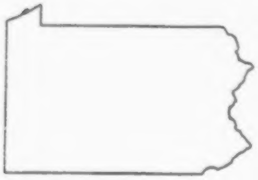

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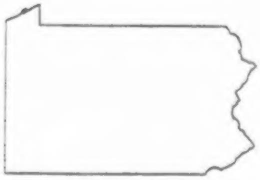

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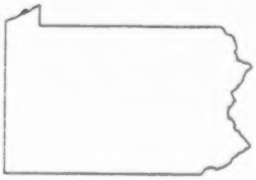

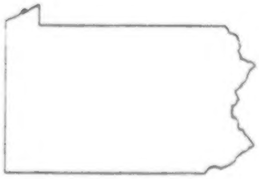

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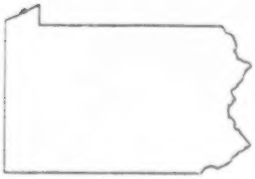

KINDERGARTEN TO GRADE 6

RESOURCE LIST

every day
lots of ways
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An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

RESOURCE LIST

CHILDREN'S BOOKS

Amazing Potato Book, The by Paulette Bourgeois
This has fun projects for home or school, all of which focus around the potato. Games and activities are just part of this book. Excellent background material is presented for storytelling.

Blue Potatoes, Orange Tomatoes by Rosalind Creasy
Describes how to plant and grow a variety of colorful vegetables, including red corn, yellow watermelons, and multicolored radishes.
Appropriate for grades 4-6.

Book of Vegetables, A by Harriet L. Sobol
The photographs show vegetables in the garden. The text is written simply and in large print. Fourteen vegetables are presented. Tomato, beans, cucumbers, peppers, and zucchini are listed as vegetables, not fruit. This might be a nice book to introduce the seed definition and some common discrepancies.

Bread, Bread, Bread by Ann Morris
Clear photographs show bread from all over the world, and the people who make and eat it.

Carrot Seed, The by Ruth Krauss
This book is old but and still enjoyed by children. It depicts the determination of a young boy who believes his carrot seed will grow into carrots despite what his family members say. The carrot does finally grow.

Cloudy With a Chance of Meatballs by Judi Barrett
The town of Chewandswallow, with food dropping from the sky like rain, was peaceful until giant meatballs and a tomato tornado forced the people to flee. Students, grades 2 and 3 will enjoy this exciting adventure.

Danilo the Fruit Man by Amy Valens
Danilo, a fruit-seller in Sicily, leads a peaceful and contented life until he finds unusual trees with magical fruit. This vividly told story will have students imaginations, from kindergarten through third grade, flying!

Day the Teacher Went Bananas, The by James Howe
Your students will enjoy the humor of the mix-up between a gorilla who goes to school, and a teacher who goes to the zoo.

Eating Fractions by Bruce Mcmillan
Food is cut into halves, thirds and quarters to illustrate how parts make a whole.
Appropriate for grades K-1.

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1993; Revised 1996.

Funded by a grant from USDA, NET Program.

Eating the Alphabet: Fruits and Vegetables from A to Z
by Lois Ehlert
Apple to Zucchini fruits and vegetables are illustrated to display a visually pleasing variety of colorful food choices. Unusual fruits and vegetables like jicama, kumquat, kohlrabi, okra, and radicchio are illustrated.

Edible Pyramid Good Eating Every Day, The by Loreen Leedy
Come into The Edible Pyramid, a restaurant that serves all kinds of delicious and nutritious meals, all based on the Food Guide Pyramid. Customers learn how many servings from the different food groups to have every day. Grades K-3.

Everybody Cooks Rice by Norah Dooley
A mother sends her daughter out to find her younger brother and bring him home for dinner. She discovers everyone in their multiethnic neighborhood is cooking rice, in a variety of ways, for dinner. The range includes black-eyed peas and rice from Barbados, Puerto Rican rice cooked in turmeric, Vietnamese rice with nuoc cham, and creole style Haitian rice with hot peppers.

Fiber by Jane Inglis
Identifies what dietary fiber is and discusses its importance and its sources. Includes recipes and related activities. Teachers may incorporate this information into lessons for grades 4-6.

Freddie's Spaghetti by Charlotte Doyle
Appropriate for students grades 1 and 2, this "dinner" story focuses on dining and the art of patience.

Fruit and Vegetable Man, A by Roni Schotter
Sun Ho first watches the artistic fruit and vegetable man, Ruby Rubenstein, at work. Soon, Sun Ho begins helping Ruby in the store and offers something new: bean sprouts. This is a colorful story for grades 2 and 3.

Fun With Fruits and Vegetables (Dole Food Company, Inc., see Teacher Resources)
This cookbook for kids illustrates great activities that incorporate fruits and vegetables into a child's diet. Students of all ages will enjoy the "cooking experiments" in this book.

Garden Alphabet, A by Isabel Wilner
A colorful alphabet book that contains rhymes about gardening. The print is large and clear.

Germs make Me Sick , Let's-Read-and-Find-Out-Science Book.
This story explains how bacteria and viruses effect the human body and how our bodies fight against them.

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1993; Revised 1996.
Funded by a grant from USDA, NET Program.

Growing Vegetable Soup by Lois Ehlert
A colorful book that introduces the tools, seeds, water, and sunshine necessary to grow a vegetable garden. The vegetables grow and are used to prepare soup.

Happy Veggies by Oda Mayumi
This brief story celebrates the growth of vegetables in a garden through the flowing brush stroke paintings of an internationally renowned artist.

How a Seed Grows by Helen J. Jordan
Uses observations of bean seeds planted in eggshells to demonstrate the growth of seeds into plants.

How do Apples Grow? by Betsy Maestro
Describes the life cycle of an apple from its initial appearance as a spring bud to that point in time when it becomes a fully ripe fruit.

Jamberry by Bruce Degen
This is a factual story in rhyme of a boy and a bear that have delicious adventures in the magical world of berryland. You may find it fun to finish up the reading with a discussion of how to make jam and jelly out of berries. The Jamberry audio tape, available through Scholastic, Inc., is a fun addition to any audio library.

Milk from Cow to Carton by Aliki
Briefly describes how a cow produces milk, how the milk is processed in a dairy, and the way various other dairy products are made from milk.

Milk Makers, The by Gail Gibbons
Explains how cows produce milk and how it is processed before being delivered to stores.

More Spaghetti I Say by Rita Goldman Gelman
The monkey in this rhymed story is too busy eating spaghetti to play with her friend Freddie. Story is for beginning level readers.

Pasta Factory by Hana Machotka
Photographs and text give the account of a class taking a trip through the Tutta Pasta Factory in New Jersey. Names of pasta shapes are explained, and the processing of pasta is described.

Pierrot's ABC Garden by Anita Lobel
Pierrot brings his friend vegetables, fruits and other items from A - Z. Grades K - 2.

Pizzas & Punk Potatoes by Arielle Rosin
Interesting background on foods with recipes and clever presentation ideas (e.g., pizza in the shape of stars, apples as fruit baskets, etc.). Chapters are short and address eggs, pizzas, potatoes, apples, crepes and milkshakes.

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1993; Revised 1996.

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Proteins by Jane Inglis
Describes the different kinds of proteins, where they are found, and their importance to human growth and nutrition. Includes activities and recipes. Grades 4-6.

Stone Soup by John Stewig
A clever lad (old soldier) in need of a meal shows villagers how to make a meal with a stone. This story has been re-written by various authors, each adding his or her own twist.

Vegetable Garden by Douglas Florian
This is a simple word book for the early reader. The use of rhyme is effective and the planting of the garden allows for easy curriculum integration. This is a great book to read at harvest time.

Vegetable Show, The by Laurene Krasny Brown
Presents information about nutrition and vegetables, by means of pictures of singing, dancing vegetable characters.

Vegetables Go To Bed, The by Christopher King
The tomatoes, carrots, spinach plants, and other vegetables in the garden prepare to go to bed, each in its own fashion. A good story to include when students are learning about gardening.

Very Hungry Caterpillar, The by Eric Carle
The story illustrates how a caterpillar grows big and prepares to become a butterfly. This concept helps to clarify how food is needed to build young bodies. This story may lead to a discussion of how food fuels the growth of living things.

Victory Garden Kids' Book: A Beginner's Guide to Growing Vegetables, Fruits, and Flowers, The by Marjorie Waters
This book will inspire you and your school to start and keep a vegetable garden.

Your First Garden Book by Marc Brown
This book suggests projects for beginning gardeners on how to sprout seeds, turn soil, plant and care for the growth of plants.

TEACHER REFERENCES

Bowes & Church's Food Values of Portions Commonly Used
Sixteenth Edition, by Jean A.T. Pennington
This book supplies data on the nutritional values of foods in a format that facilitates quick and easy reference.

Fast Food Facts by Marion J. Franz
This book, produced by the International Diabetes Center, gives an extensive evaluation of fast food restaurants and food products and how they fit into a healthy lifestyle. Cost of the book is $6.95 and may be available at your local bookstore. (ISBN 0-937721-67-0) For more information, write to DCI Publishing, P.O. Box 739, Wayzata, MN 55391.

Fast Food Guide by the Center for Science in the Public Interest
This book provides a listing of products' nutritional values from popular fast food restaurants. Foods are broken down and analyzed for nutrient content. Cost of the book is $7.95. For information, call (202)332-9110 or check your local bookstore.

Games and Great Ideas
A Guide for Elementary School Physical Educators and Classroom Teachers, edited by Rhonda L. Clements. An excellent resource for getting children to move, the table of contents includes: Theoretical Considerations for Teaching Games, An interdisciplinary Approach to Games, Games Reflecting Different Cultures, Developmentally Appropriate Behavior through Games, and Fitness and Leisure through Games and Sport.

How to Teach Nutrition to Kids by Connie Liakos Evers, M.S., R.D.
An integrated, creative approach to Nutrition Education for children, ages 6-10, this book is packed with nutrition education activities and strategies that are kid-tested and teacher-endorsed. Divided by subject, this resource effectively integrates nutrition into the classroom, cafeteria, and home environments.

Reviving Ophelia: Saving the Selves of Adolescent Girls by Mary Pipher
This vibrant and insightful account explores the everyday dangers of being young and female, including body image disturbances and eating disorders, and how adults can help.

Schoolgirls: Young Women, Self-Esteem, and the Confidence Gap by Peggy Orenstein
Based on her investigation of two American middle schools, journalist Peggy Orenstein reports on the problems facing young schoolgirls today. She finds that despite advances in women's roles, many American girls still experience low self-esteem and self-censorship.

Second Helpings-Books and Activities About Food by Jan Irving and Robin Curie
The FUN activities in this book, designed for primary through middle school students, are generated around the topic of food. This book, intended as a resource book for educators, provides a listing of books focused around various themes, divided into eight chapters. Each chapter contains an introduction to the theme, a focus book, activities that relate to the focus book, a readers theatre script, activities related to the chapter topic, a starter kit, and recipes.

TEACHER RESOURCES

COMPUTER SOFTWARE

5-A-Day Adventures

Dole Food Company, Inc
Nutrition Program
155 Bovet, Suite 476
San Mateo, CA 94402
1-800-766-7201
Fax: (415) 570-5250

Use school letterhead to write or fax a request for a free copy of this program. The interactive, multimedia program includes a Fun with Fruits and Vegetables Cookbook for Kids, fruit and vegetable stickers, and a chart for tracking fruit and vegetable consumption. Include your school's name, address, phone number, teacher's name making the request. Up to 25 copies, free of charge, allowed. Both IBM and Macintosh compatible.

Sugar Science: Photosynthesis to Food

The Sugar Association, Inc.
1101 15th Street, N.W., Suite 600
Washington, DC 20005
(202)785-1122
Fax: (202)785-5019
Cost: $39.95

This curriculum is an effective teaching tool due to the computer software package which explains the processes of photosynthesis and respiration as well as the role of plants in the food chain. This interactive program, accompanied by a manual, gives students, grades 6-9, the opportunity to form hypotheses, investigate, and conduct experiments. The students work with experimental variables and see how products are affected through different variables.

CURRICULA

All About Apples

This educational packet is available at a cost of $9.50 from Unique Country Products. For more information, contact (413)572-0397.

Delicious Decisions: Food Choices to Grow on!

Dairy Council of Wisconsin
999 Oakmont Plaza Dr, Suite 510
Westmont, IL 60559
1-800-325-9121

Integrated nutrition education for K-6. Includes the Food Guide Pyramid, a set of food picture card photographs, educator's guide, lesson plans, blackline masters, and a **poster of the Food Guide Pyramid**. Cost is $14.50 plus S&H per set and $1.25 plus S&H for the poster.

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education,1993; Revised 1996.

Funded by a grant from USDA, NET Program.

Glo-Germ Science Kit

This science kit helps children visualize "germs on hands." The kit includes various activities that include the use of a special spray or powder and a UV light to illuminate microbes. For information, contact: Brevis Corporation,1-800-383-3377.

Healthy Choices for Kids

The Growers of Washington State Apples
c/o Healthy Choices for Kids
Nutrition and activity Education Program
P.O. Box 550
Wenatchee, Washington 98807-0550
(509) 663-9600
Fax: (509) 662-5824

This program consists of four chapters, each focusing on one or more of the dietary guidelines. The curricula supports the "5 A Day-for Better Health!" campaign and the USDA's Food Guide Pyramid.

Mid-LINC
Middle Level Interdisciplinary Curriculum

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870 Cost:$98.00 plus $8.00 S&H

Contact the Penn State Nutrition Center for ordering details.
Three units are included in this interdisciplinary curriculum: Prehistoric vs. Modern Diet, Growing to the Max, and Food-Environment Connection.

Pyramid Packet

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870

Packet contains transparencies, reference sheets, brochures, a poster, food cards, and teaching tips for the pyramid, especially for the hard to place foods and sparingly foods.
Cost is $25.00 plus $4.00 S&H
PA residents must send tax exemption or add 6% sales tax.

PUBLICATIONS

Nutrition Accuracy in Popular Magazines (1992-1994)

A Special Report published by The American Council on Science and Health, this publication lists various popular magazines and evaluates the accuracy of the nutritional information presented. Individual copies are available at a cost of $3.85. Reduced prices for 10 or more copies are also available. For ordering information, contact The

American Council on Science and Health, 1995 Broadway, 2nd floor, New York, NY 10023-5860, (212)362-7044 or fax (212)362-4919.

FDA Consumer
Published by the FDA, this special report focuses on food labeling and how to interpret information provided on food labels. For ordering information, contact (301) 443-3220.

Gimmie 5 Kids' Tips
This brochure gives tips to parents on how to get children to eat more fruit and vegetables. Available free from: International Apple Institute, 6707 Old Dominion Drive, Suite 320, McLean, VA 22101 (703)443-8850

VIDEOS

E.A.G.A.H.B.E.D. (Eat a Good and Healthy Breakfast Every Day)
This entertaining yet educational video, targeted for first through fifth grade students, focuses on teaching children how breakfast helps them learn. Video is accompanied by a 12-page teacher manual. (See Dairy Council Group Resource listing for catalog ordering information.)

Janey Junkfood's Fresh Adventure
Foodplay
221 Pine Street
Northampton, MA
01060
1-800-FOODPLAY

Make Mine Milk produced by the Dairy Council (See Group Resources Listing)
This is a fast-paced, entertaining video that teaches elementary kids where milk comes from, how it is processed, and how it contributes to a nutritious diet. This 27 minute video was developed in eleven interdisciplinary segments and includes a leader guide.

CATALOGS

The Gürze 1996 Eating Disorders Bookshelf Catalog
Gürze Books
P.O. Box 2238
Carlsbad, CA 92018
1-800-756-7533
This catalog displays a variety of materials related to eating disorders.

Lowfat Lifeline- Health Education Resources Catalog
Valerie Parker, M.S.
P.O. Box 1889
Port Townsend, WA 98368
360-379-9724
Fax 360-385-6835

NASCO Nutrition Teaching Aids Catalog and **Nasco Science Catalog**
901 Janesville Avenue
P.O. Box 901
Fort Atkinson, WI 53538-0901
1-800-558-9595
Fax 414-563-8296
A comprehensive catalog featuring teaching aids for hands on learning.

Nutrition Counseling and Education Services (NCES)
1904 E. 123rd St.
Olathe, KS 66061
1-800-445-5653
This catalog displays a variety of nutrition education materials.

The Pennsylvania State Nutrition Center Catalog of Nutrition Education Materials
Provides a listing of materials developed by the Nutrition Center. Materials range from educational brochures to extensive curriculum packets. For a free catalog, contact: The Penn State Nutrition Center, 5 Henderson Building, University Park, PA 16802. (814) 865-6323

OTHER

Guide to Good Eating
your local Dairy Council or
Order Department
National Dairy Council
10255 W. Higgins Rd, Suite 900
Rosemont, IL 60018-5616
Miniature poster of the five food groups is available for $1.25, plus S&H poster- $3.00, plus S&H

GROUP RESOURCES

Many of these organizations provide Food Guide Pyramid posters.

Consumer Information Center
Department 159-Y
Pueblo, CO 81009
Ask for the Consumer Information Catalog, a catalog of free and low cost federal publications of consumer interest. There are useful **Food Guide Pyramid** resources available, including large **posters** and booklets.

Florida Department of Citrus
PO Box 148
Lakeland, FL 33802
(941) 499-2500
The Florida Department of Citrus has a wide variety of nutrition education materials including **Food Guide Pyramid posters**. Grades K-12. Send for a free catalog of their products.

National Dairy Council
10255 West Higgins Road, Suite 900
Rosemont, IL 60018-4233
(708) 803-2000, ext. 220
The National Dairy Council provides a **Daily Food Guide Pyramid poster** for $3.00 as well as a free catalog of their nutrition education materials. Contact your state Dairy Council or Associated Milk Producers Office for other resources.

National Cattleman's Beef Association
Education Department
444 N. Michigan Avenue
Chicago, IL 60611
Use school letterhead to request a catalogue which lists a wide variety of elementary curriculum kits, many free of charge.
Food Guide Pyramid poster (1.50)

Sunkist Growers, Inc.
PO Box 7888
Van Nuys, CA 91409
(818) 986-4800
Sunkist Growers, Inc. offers free of charge the "Orbiting Oranges Kit." Included is one "Orbiting Oranges" poster, teacher information and 25 activity books. Grades 3-6. This kit supports the "5 A Day - for Better Health!" campaign.

USA Rice Council
P.O. Box 22802
Houston, TX 77027
(713)270-6699
Contact this organization for various activities appropriate for elementary students. The following activity is provided, free of charge: "Teaching With Rice the Fun Way."

Washington State Dairy Council
4201-198th Street, SW Suite 102
Lynnwood, WA 98036
They offer bright, colorful stickers of the Food Guide Pyramid (English or Spanish). $3.00 plus S&H per 100 stickers. For more information or a catalog call:
206-744-1616 (Toll Free Fax-1-800-470-1222)

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Funded by a grant from USDA, NET Program.

GARDENING

Children's Seed Program
Brooklyn Botanic Garden
1000 Washington Avenue
Brooklyn, NY 1122501099
The program offers reasonably priced seeds and gardening supplies for children and beginning gardeners.

Growlab
National Gardening Association
180 Flynn Avenue
Burlington, VT 05401
1-800-538-7476
A comprehensive, science curriculum for K-8, including indoor garden equipment, books, posters, videos, and curricula.

Let's Get Growing!
1900 Commercial Way
Santa Cruz, CA 95065
Curricula, kits, and garden-based science supplies are available through this catalog.

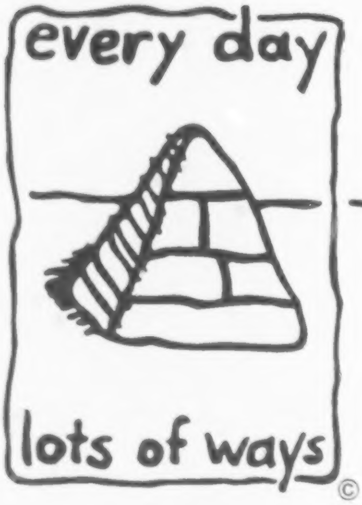
GAMES

Pyramid Power
Cooperative Extension in Lancaster County
444 Cherrycreek Road
Lincoln, NE 68528-1507
This is a nutrition game that resembles bingo. It reinforces information illustrated in the Food Guide Pyramid.

Harvest Time
Harvest Time is a board game for children ages four to seven. The object is to try to pick all the vegetables. The cost is $17.00. For more information, contact Animal Town, PO Box 485, Healdsburg, CA 95448, 1-800-445-8642.

KINDERGARTEN TO GRADE 6

INDEX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An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

INDEX

This index is organized as follows:

I. Academic Subject Areas
II. Food Guide Pyramid
III. Food and Nutrients
IV. Health Promotion

KEY: Lessons 1-10 are found in unit K-1
Lessons 11-22 are found in unit 2-3
Lessons 23-35 are found in unit 4-6

An (X) next to the lesson number number denotes an extension of that lesson.

I. Academic Subject Areas

LANGUAGE ARTS

- •Alphabet
  - -A to Z is Good For ____! Lesson 10
- •Concept mapping
  - -Sugar Factory, The Lesson 24
- • Dictionary Skills
  - -F.O.S. Fats, Oils, Sweets Lesson 20
  - -Sparingly Lesson 29
- •Finger plays, rhymes, and storytelling
  - -Good-bye, Dirt and Germs! Lesson 1
  - -Handy Rule, A Lesson 2
  - -Ms. Spaghetti Sauce, Let's Look at Your Life Lesson 8
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  - -Headline News Energizes the U.S. Food Guide Pyramid Introduced Lesson 23
  - -EVERYBody A GREAT Body Lesson 35
  - -Sugar Factory, The Lesson 24
- •Mnemonic strategy
  - -My Pet Fish Drives Everyone Nuts Lesson 18
- •Research skills
  - -Headline News Energizes the U.S. Food Guide Pyramid Introduced Lesson 23
  - -Sugar Factory, The Lesson 24(X)

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- Writing skills
  - -Be Adventurous! Lesson 15
  - -Cake Baking Experiment, The Lesson 31
  - -Energy Output Survey Lesson 33
  - -EVERYBody A GREAT Body Lesson 35
  - -F.O.S. Fats, Oils, Sweets Lesson 20
  - -Grubbing for Grains Lesson 14(X)
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  - -Mystery Fruit Forms Lesson 6(X)
  - -Sparingly Lesson 29
  - -Thirst Quenchers Lesson 19(X)

MATHEMATICS

- Concepts of patterns, functions, and relations
  - -Food Guide Pyramid - Sorting Mat Lesson 22
  - -Matching and Graphing Vegetables and Fruits Lesson 9
  - -Pyramid Puzzle! Lesson 11
- Basic concepts of algebra, geometry, and probability & statistics
  - -Building Pyramids Lesson 12
- Calculating information from a food label
  - -Cake Baking Experiment, The Lesson 31
  - -Calculating Calories Lesson 27
  - -Pyramid Power Lesson 32
  - -Sparingly Lesson 29(X)
  - -Where's the Fat? Lesson 30
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  - -Handy Rule, A Lesson 2(X)
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  - -Milk Mysteries Lesson 17(X)
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  - -Mystery Fruit Forms Lesson 6(X)
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  - -Thirst Quenchers Lesson 19(X)
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- Greater than, less than, equal to
  - -Pyramid Puzzle! Lesson 11
- Maximum, minimum, range, midpoint,
  - -Building Pyramids Lesson 12
  - -Energy Bolts! Lesson 28
  - -Reach for the Stars! Lesson 21
  - -Where's the Fat? Lesson 30

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- Number combinations using manipulatives
  - -Where's the Fat? Lesson 30(X)
  - -Winning Combinations Lesson 3(X)
- Percentages
  - -Energy Output Survey Lesson 33
  - -Sparingly Lesson 29(X)
  - -Thirst Quenchers Lesson 19(X)
  - -Where's the Fat? Lesson 30
- Rank order
  - -Mystery Fruit Forms Lesson 6(X)
  - -Pyramid Puzzle Lesson 11
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- Rounding
  - -Calculating Calories Lesson 27
- Units of measure
  - -Food Guide Pyramid - Sorting Mat Lesson 22
  - -Pyramid Power Lesson 32

PHYSICAL EDUCATION

- Extensions
  - -A to Z is Good For ____! Lesson 10(X)
  - -Building Pyramids Lesson 12(X)
  - -Handy Rule, A Lesson 2(X)
  - -Mystery Fruit Forms Lesson 6(X)
  - -They Start in a Garden Lesson 4(X)
  - -Winning Combinations Lesson 3(X)
- Tracking and evaluating energy output
  - -Energy Output Survey Lesson 33

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- Basic concepts and principles of physical, chemical, biological, and earth science
  - -Sugar Factory, The Lesson 24
  - -What are Calories? Lesson 26
- Calories as a measure of food energy
  - -Calculating Calories Lesson 27
  - -What are Calories? Lesson 26
- Computer technology
  - -Headline News Energizes the U.S. Lesson 23(X)
  - -On Your Own Lesson 34(X)
  - -Sugar Factory, The Lesson 24(X)

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• Different forms of food
    -Grubbing for Grains Lesson 14(X)
    -Matching and Graphing Vegetables and Fruits Lesson 9
    -Milk Mysteries Lesson 17
    -Mystery Fruit Forms Lesson 6
    -Ripe and Ready to Eat! Lesson 7
• Digestion
    -Fabulous Fiber Lesson 5
    -Sugar Factory, The Lesson 24(X)
• Exploring the senses
    -Be Adventurous! Lesson 15
    -Cake Baking Experiment, The Lesson 31
    -Fabulous Fiber Lesson 5
    -Grubbing for Grains Lesson 14(X)
    -Matching and Graphing Vegetables and Fruits Lesson 9
    -Ms. Spaghetti Sauce, Let's Look at Your Life Lesson 8(X)
    -Mystery Fruit Forms Lesson 6
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• Fiber
    -Fabulous Fiber Lesson 5
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    -Handy Rule, A Lesson 2
• Heredity
    -EVERYBody A GREAT Body Lesson 35
• Growing vegetables
    -Sugar Factory, The Lesson 24(X)
    -They Start in a Garden Lesson 4
• Observation, data collection, analysis, pattern recognition, prediction, and scientific reasoning
    -Cake Baking Experiment, The Lesson 31
    -Fabulous Fiber Lesson 5
    -Grubbing for Grains Lesson 14
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• Photosynthesis
    -Pennsylvania's Energy Contributions Lesson 25(X)
    -Sugar Factory, The Lesson 24
• Water as an essential nutrient
    -Thirst Quenchers Lesson 19

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SOCIAL STUDIES

- Ancient pyramids
  - -Pyramid Puzzle! Lesson 11(X)
- Food production/processing
  - -From Farm to Food Lesson 13
  - -Grubbing for Grains Lesson 14(X)
  - -Handy Rule, A Lesson 2
  - -Is it Fruit? Lesson 16(X)
  - -Milk Mysteries Lesson 17
  - -Ms. Spaghetti Sauce, Let's Look at Your Life Lesson 8
  - -Pennsylvania's Energy Contributions Lesson 25
  - -Ripe and Ready to Eat! Lesson 7(X)
- Gender and Body Types
  - -EVERYBody A GREAT Body Lesson 35
- Map reading
  - -From Farm to Food Lesson 13
  - -Grubbing for Grains Lesson 14(X)
  - -Headline News Energizes the U.S. Lesson 23
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II. Food Guide Pyramid

FOOD GUIDE PYRAMID

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-Sugar Factory, The Lesson 24
-Thirst Quenchers Lesson 19
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-Winning Combinations Lesson 3

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"PYRAMID POWER"
GRADES 2 AND 3

LESSONS 11-22

every day
lots of ways ©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

For more information on this curriculum write or call:

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every day lots of ways©

An Interdisciplinary Nutrition Curriculum for Kindergarten - Sixth Grade

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Lesson	Title and Curriculum Connection	Nutrition Overview
1	Good-bye, Dirt and Germs! (Health)	It is important that young children learn and practice habits that are beneficial to their health. In this lesson, students will learn the importance of washing hands and fresh vegetables and fruits prior to consumption.
2	A Handy Rule (Language Arts)	"Five a Day" is an important guide for healthful eating. As students learn this "handy rule" they will be introduced to vegetables and fruits as sources of vitamins A and C, as well as fiber.
3	Winning Combinations (Mathematics)	The "Five a Day - For Better Health" national campaign encourages Americans to consume at least five vegetables and fruits a day. The recommended combination of five is three vegetables and two fruits.
4	They Start a Garden (Language Arts/Science)	Vegetables are an important food group for good health but may not rank among students' favorite foods. Growing vegetables, however, might increase students' interest in this part of their diet.
5	Fabulous Fiber (Science)	Most adults know fiber is in foods, but seldom do we consider its "fabulous" health benefits. Students will observe fiber in plant parts and become familiar with some "fabulous" fiber foods.
6	Mystery Fruit Forms (Science)	Children are encouraged to eat a minimum of two servings of fruit a day. Fortunately, there are many ways to reach this goal because fruit comes in a variety of forms.

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Lesson	Title and Curriculum Connection	Nutrition Overview
7	Ripe and Ready to Eat! (Science)	Students will learn the difference between underripe, ripe, and overripe fruits. They will determine that fruits should be ripe when eaten.
8	Ms. Spaghetti Sauce, Let's Look at Your Life (Social Studies)	It is important for consumers of all ages to understand that foods we eat may go through many processes before they get to our table. Great costs are involved in transporting fresh foods from coast to coast. High costs may influence our food choices more than we think.
9	Matching and Graphing Vegetables and Fruits (Language Arts)	Once a food has been processed, it can be difficult to trace it back to its original form. Students may be better able to meet their "5 A Day" if they understand that processed vegetables and fruits also count.
10	A to Z is Good For ________! (Language Arts)	The alphabet can be used as a tool to illustrate the variety of vegetables and fruits. Vegetables and fruits can be named for almost all of the letters in the alphabet.
11	Pyramid Puzzle (Health/Mathematics)	The Food Guide Pyramid was designed as a guide to daily food choices for all Americans. It is important to understand that all the groups in the Food Guide Pyramid are essential for good health.
12	Building Pyramids (Mathematics/Art)	It is important to distinguish between the base and the top of the Food Guide Pyramid. The differences in shape and size are associated with the recommended servings of each food group. Students will realize that the base of any pyramid, especially the Food Guide Pyramid, is its foundation.

Lesson	Title and Curriculum Connection	Nutrition Overview
13	From Farm to Food (Social Studies)	By the time food reaches our kitchens, many products bear little resemblance to their original form. Students will trace a processed food product back to an original source to re-establish that connection and understand its placement in the Food Guide Pyramid.
14	Grubbing for Grains (Language Arts/Science)	Grubbing for grains may sound messy but it isn't. Students will not sift through grains, but they will sift through information on product food labels to identify the grain used in the production of the food item.
15	Be Adventurous (Language Arts)	Children typically enjoy fruits more than vegetables. However, by discovering the wide variety of vegetables and different preparation methods, children may increase their vegetable consumption.
16	Is it Fruit? (Language Arts/Mathematics)	Some manufacturers recognize the appeal of the word "fruit" to sell a product. Through closer inspection of the product through the label information, the students will determine whether the item should be categorized as a fruit.
17	Milk Mysteries (Science)	Many people place all dairy products in the Milk, Yogurt, and Cheese food group. However, some of these products belong in the tip of the pyramid because they are primarily made from cream, and/or they do not have a high enough calcium content.

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Lesson	Title and Curriculum Connection	Nutrition Overview
18	My Pet Fish Drives Everyone Nuts (Language Arts)	The Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group has a diverse number of food origins. Many children (and adults) forget all of the foods that go into this group. Using a mnemonic sentence can help all of us remember them.
19	Thirst Quenchers (Health)	There are a variety of beverage choices in the Food Guide Pyramid. Because of the differing nutrient contents of these drinks, some belong in the major food groups, whereas others belong in the tip of the pyramid.
20	F.O.S. (Language Arts)	Fats, oils, and sweets may be ingredients in some of the foods we enjoy, but when those ingredients appear first by weight on a food label, we should consume the food items sparingly. Students need to become comfortable applying the term "sparingly" to their own food choices.
21	Reach for the Stars! (Health/Mathematics)	The determination of food consumption is valuable when concerned about one's diet. Food records reveal important information regarding eating patterns and food consumption. It is important to determine how much of each food group is consumed in order to evaluate if nutrient needs have been met.
22	Sorting Mat (Mathematics/Health)	To be able to plan for healthy eating, it is important to categorize food items. Determination and acknowledgment of serving sizes of these foods is equally important.

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Lesson	Title and Curriculum Connection	Nutrition Overview
23	Headline News Energizes the U.S. Food Guide Pyramid is Introduced (Lang.Arts/S.S./Health)	Many people do not view nutrition as "news." However, it is a subject we continue to learn about and new findings in nutrition are newsworthy events.
24	The Sugar Factory (Science/Art)	Photosynthesis, although not taught in depth, plays an important role in our food production.
25	Pennsylvania's Energy Contributions N.E.W.S. (North, East, West and South) (Social Studies)	The students will learn that some commonly consumed foods are locally grown or produced. Students will appreciate the role of their community in producing foods for healthy diets.
26	What are Calories? (Science)	Many Americans count calories everyday. In this lesson, students will learn that calories are a measure of energy. Prior to presenting this lesson to your class, do the experiment yourself to verify the results. (burning a peanut)
27	Calculating Calories (Mathematics)	Americans have started reading food labels to aid them in making informed choices. Students will learn how to read food labels and understand the information given.
28	Energy Bolts! (Health/Mathematics)	This activity will explore the recommended number of servings on the Food Guide Pyramid. The information will enable students to determine if they have met their daily requirements.
29	Sparingly (Language Arts/Health)	Many people enjoy foods that have little nutritional value. Although these foods need not be eliminated from the diet, the USDA encourages us to consume them sparingly.

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Lesson	Title and Curriculum Connection	Nutrition Overview
30	Where's the Fat? (Mathematics)	Within each food group, we have choices. Not all foods in each food group have the same nutrient composition. For example, foods that are processed can have a higher fat content than might be expected.
31	The Cake Baking Experiment (Science/Health)	The results of this cake testing experiment might surprise you! Offer students a glass of prune juice and they will decline. As a substitute for oil in cake mix, their taste buds may be tricked.
32	Pyramid Power (Mathematics)	There are calorie recommendations for different age levels. The nutrients that comprise those calories deserve careful consideration.
33	Energy Output Survey (Health/Physical Education)	We all know exercise is part of a healthy lifestyle. Tracking and evaluating energy output is the focus of this lesson.
34	On Your Own: Making Smart Energy Choices (Health/Mathematics)	Planning nutritious breakfasts and snacks can help all of us. In this lesson, students will gather nutrition information and make food choices based on this information.
35	EVERYBody A GREAT Body! (Health/Social Studies)	Students will learn that focusing on overall well-being and creative individuality is more healthful than trying to achieve the unrealistic "ideal" body that is often promoted by the media.

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"PYRAMID POWER" THEMATIC UNIT
GRADES 2 & 3

UNIT SYMBOL DESCRIPTIONS

⬟	Nutrition Overview: Brief statement summarizing the nutrition message
⬟	Objectives: List of the teaching techniques used to communicate the material
⬟	Materials: List of the supplies needed to conduct the lesson
⬟	Information for Teachers: Background information about the topic
⬟	Steps to Follow: Lesson sequence step by step
⬟	Extensions: Springboards to enhance the lessons
ask	Student Interaction: Prompt for teachers indicating that students are to be asked a question
ALLERGY CAUTION!	Be mindful: Keep your list handy of students with food allergies when considering taste tests in the classroom
◆	This symbol in the upper corner of each page signifies that the lesson is from the Second and Third Grade unit, "Pyramid Power".

FOOD SERVICE AND NURSE EXTENSIONS

These extensions have been combined together in one section so that the Food Service Director and the School Nurse can plan in advance to visit the classroom at the time the lesson is taught. A list of activities for each of these extensions begins on page xli within this unit.

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GOAL/OBJECTIVE OF CURRICULUM UNIT

"Pyramid Power" is an interdisciplinary nutrition curriculum that promotes USDA's Food Guide Pyramid in core subjects. The children will have an opportunity to study the five food groups and the wide variety of choices within each group. They will also explore the relative amount of food to eat from each group. The "tip" of the pyramid is covered but not in-depth. This is done in unit 4-6 "Energy Choices."

Children live for today, but health-related diseases often take a lifetime to manifest. This unit will address food habits that can lead to a healthier life, since we know the habits developed in childhood contribute to the outcome of a healthy or unhealthy body.

Food choices are personal and based on individual experiences. As children grow and gain more experiences they learn there is a world of people with diverse customs, beliefs, and ways of life that influence food choices.

This unit is developed to create enthusiasm, appreciation and respect for the similarities and differences of all people and the foods they choose.

SCIENTIFIC CAUTION

"Every Day Lots of Ways" integrates various teaching techniques to reinforce concepts students learn. One way is through scientific experimentation. Safety should be a major consideration for both students and teachers. Prior to beginning any experiment, please discuss the issue of safety with your students and clarify what you expect of them. Explain to students that when safety guidelines are not adhered to, people may be harmed. Be prepared for the experiment, make sure all equipment and ingredients are labeled so that students are aware of what the substances are. Have boundaries drawn or clearly mark where students are and are not allowed to be. When working with any experimental substance, teachers and students should wear protective eye gear. Instruct students on the following: keep chemicals (and other substances) off clothes, if they come in contact with chemicals rinse with water, wipe up any spills immediately, and wash hands before and after each activity. Remind students that we never taste chemicals or inhale them. Check with your school's science coordinator and/or administrator about the use of chemicals and a flame in the classroom prior to conducting the experiments.

EXTENSIONS WITHIN EACH LESSON

Each lesson plan has a section entitled Extensions. The Extensions are springboards to enhance the lessons. They are one way to set second grade apart from third grade. Therefore you may find it helpful to meet with all the teachers as a team and decide what concepts will be introduced to which grade levels, etc. The Extensions offer you flexibility to create what works for you and your school. The following is an explanation of the Extensions.

Not all the extension topics are listed for each lesson. You may think of some new extensions to add. It is your ideas and flexible extensions that will enhance the concepts to make them relevant to the student. We encourage you to have fun and try one, some, or all of the extensions.

ACT IT OUT

These are suggestions for role-playing.

BULLETIN BOARD IDEAS

Here we give ideas to create bulletin boards that will enhance the unit. In the unit there may be an idea listed for each lesson; obviously this is not feasible. It is up to you to choose the bulletin board idea that will emphasize the concept you feel is important to you for this unit.

CAREERS

In this section we have simply named occupations which relate to concepts taught in the lesson. You may want to mention this to your students at the time of the lesson or use this information when you discuss community helpers or jobs that relate to our health and well-being.

CLASS PROJECT

Again, this is a springboard idea. You cannot do all the class projects; however, one may work better for one class or grade than another. This is a good opportunity to network between the teachers in your grade or primary team.

FOOD SERVICE COOPERATION

The food service is often referred to as the nutrition laboratory of the school. Food Service Directors can be a wealth of information and can help illustrate that the school lunch and breakfast programs are designed to enhance each student's health.

FURTHER INVESTIGATIONS

This extension allows you to link the subjects. When the students see how they all link together, it makes for a more meaningful experience.

INVITE THE NURSE

Many nurses enjoy the opportunity to visit the classroom and support the health programs. By using these ideas, you can come up with ways to include the nurse so the students recognize the contribution of the nurse to the school team.

I THINK I CAN, I KNEW I COULD

This is the opportunity your students have to apply the nutrition concepts to their own lives. It is a time to assess behavior, set goals for small changes, assess successes or setbacks, and praise accomplishments. This can be very personal; you may want to do this individually vs. large group settings.

TAKING IT HOME

This is a time to involve the family or at least one family member in the child's learning. Many teachers say nutrition starts at home. This section gives ideas for ways you can get parents or guardians thinking about food choices and listening to and supporting what your students are learning in school.

TASTE TEST

A few bites of a food can communicate more than words. Foods for taste tests may be obtained from parents, school food service or donated by local grocers.

RESOURCES

Books, videos and other resources intended to complement lessons. The list of books can be used to select a book for story time or in making new purchases for your library shelf. You'll want to be sure to share the list with your school librarian.

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MATERIALS LIST
UNIT 2 & 3

GENERAL MATERIALS USED IN THE LESSONS:

- Taste Test permission slip (completed prior to taste testing activities)
- construction paper
- dictionary
- glue
- paper
- pencil
- ruler
- scissors
- stapler
- tape
- Food Guide Pyramid poster (to obtain see Resource List)

WORKSHEETS SPECIFIC TO EACH LESSON:

Worksheets and answer keys where applicable are located at the end of each lesson.

LESSON 11: PYRAMID PUZZLE!

- Pyramid Puzzle worksheet
- Measuring the Pyramid worksheet
- scissors
- glue
- construction paper
- Greater Than, Less Than, Equal To worksheet
- (Optional) Pyramid at Giza worksheet

LESSON 12: BUILDING PYRAMIDS

- Three Dimensional Pyramid Model worksheets
- Milk Carton Pyramid reference sheet
- scissors
- glue (or stapler)
- construction paper (6 different colors)
- ruler
- 1/2 pint-sized milk cartons from the school cafeteria (minimum of 16 cartons)
- tape
- (Optional) chalk, masking tape, basketball, jacks and jumprope

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LESSON 13: FROM FARM TO FOOD

- "Farm to Food" videotape (included with curriculum)
- Where Does it Come From? worksheet
- (Optional) Pennsylvania County Map and production maps - see Lesson 25

LESSON 14: GRUBBING FOR GRAINS

- Each student brings to class an empty cereal box
- Empty food packages of bread, rice and pasta (one per student)
- Food ads (flyers) from grocery store
- Food Guide Pyramid Poster (to order see Resource List) OR
- Pyramid Model (made in Lesson 12)
- Samples of grains (available at a health food store or school foodservice)
- Actual servings of food to illustrate portions (e.g., 1 cup of spaghetti noodles, 1/2 cup rice, 1 ounce dry cereal, etc.) OR life-size punch-out food photographs available from your local Dairy Council (see Resource List).
- (Optional) Fiber in Bread worksheet

LESSON 15: BE ADVENTUROUS

- lists of foods in the Vegetable group (appendix B)
- hat, salad bowl, or produce shopping bag
- cookbooks
- dictionary
- Sample Letter to Write Home

LESSON 16: IS IT FRUIT?

- 8 food labels with "fruit" or a fruit name used in the title or descriptor*
- 6 envelopes
- 6 (3x5") index cards per group of students

* **Note:** Examples are products such as: fruit, dried fruit, candies, fruit cookies, fruit-shaped and fruit-flavored cereals, fruit chewing gums, fruit-flavored popsicles, fruit cocktail, fruit cups, or strawberry milkshake mixes. Six labels will be used for the class activity. The other two labels, you will need for introducing the lesson.

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LESSON 17: MILK MYSTERIES

- 2 baby food jars with lids
- milk
- heavy whipping cream
- empty food packages:
    - milk
    - liquid whipping cream
    - cream cheese
    - sour cream
    - yogurt
    - cottage cheese
    - chip dip
    - cheese
    - butter
    - ice cream
    - pudding
    - ice milk
    - frozen yogurt
- crackers or bread to spread butter on for taste test

LESSON 18: MY PET FISH DRIVES EVERYONE NUTS

- paper
- pencil
- (Optional) audio tape recorder

LESSON 19: THIRST QUENCHERS

- empty beverage containers such as:
    - vegetable juice
    - 100% fruit juice
    - cola
    - fruit punch, ades, fruit "drinks"
    - milk
    - sports drinks
    - seltzer
- graph paper
- Goal Keeper! worksheet

LESSON 20: F.O.S.

- dictionary
- pencil and paper
- sugar bag
- oil bottle
- shortening package
- cola bottle
- jelly jar
- candy bar or candies
- Fats, Oils, and Sweets list

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LESSON 21: REACH FOR THE STARS!

- school breakfast and lunch menus
- paper
- colored pencils, colored pens, crayons, or markers
- Reach for the Stars worksheet
- Pyramid Reference Sheet
- food group lists (appendix B)

LESSON 22: FOOD GUIDE PYRAMID-SORTING MAP

- mural paper, yardstick and marker to make the Food Guide Pyramid Sorting Mat
- Manipulatives:
  - empty, clean food packages
  - fast food containers
  - food coupons
  - food advertisements
  - grocery flyers
  - Food Guide Pyramid sorting cards - foods and measures (appendix A)
  - measuring cups (1 cup, 1/2 cup, 3/4 cup)

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LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
11	Inform the Food Service Director that your class is beginning the unit on the Food Guide Pyramid. Suggest s/he decorate the cafeteria or that your your students use some of the work they will be generating in this unit to decorate the cafeteria. Ask the Food Service Director to stress the wide variety of foods found on the Food Guide Pyramid through a class discussion or bulletin board exhibits.	Inform the school nurse that you are beginning a unit on the Food Guide Pyramid. Invite the nurse to discuss the importance of diet to total health or ask the nurse to arrange for an expert or professional to come to your class (i.e., Registered Dietitian or representative from the National Dairy Council). Just as the students have recognized that all of the pieces of the puzzle fit together for a whole guide, all the food groups fit together for a total diet. Encourage students to make the connection that diet is an important piece of total health. (Rest, play, daily hygiene, and avoiding drugs and tobacco are also important for good health.) The concept of taking care of ourselves through proper diet should be stressed.
13	Give students the monthly lunch menu and challenge them to determine if any meals are composed of only foods produced in Pennsylvania. They can use the information from the Farm to Food video to help them.	
14	Pancakes, waffles, muffins, doughnuts, pastries, pie crusts, and cookies are all part of this food group because the predominant ingredient is flour. However, they have more added fat and sugar than other bread products. Invite your Food Service Director to visit your class and explain how the fat and sugar content of foods in this food can change based on the preparation. Share information about the role of fat and sugar in these products, and why they are added. Point out that these foods provide vitamins and minerals like other breads plus extra calories from the added fat and sugar. Refer the key on the Food Guide Pyramid poster which defines the symbols for naturally occurring/added fats an added sugars. Show students these symbols are pictured in the food group Bread, Cereal, Rice and Pasta because some foods in this group are made with	The American Cancer Society has information on the importance of fiber in the diet. The three food groups at the bottom of the pyramid are the foundation of the diet and the three main contributors of fiber. Invite the nurse to share fiber information from the American Cancer Society directed to children.

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LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
14 (con't)	fat and sugar. Help the students make a list of foods that have added fat and sugar. Tell the students it is acceptable to eat these foods, but to eat them sparingly.	
15	Based on the information discussed in this lesson, invite the students to write a letter to the Food Service Director about ways they would like to see vegetables prepared for school lunches.	
16	Many fruit purveyors and associations have information and worksheets designed to promote fruit consumption among elementary school aged children. Ask the Food Service Director to help you locate some new resources for your classroom.	Many fruits are a good source of vitamin C. Vitamin C plays a role in wound healing and cancer prevention. Ask the nurse to talk about the nutrient benefits of vitamin C and eating fruits. Have the nurse point out that many foods are fortified with vitamin C. While this is good, there are still many other nutrients found in fruits that are usually not present in the fortified food. These vitamin C fortified foods are not a substitute for fruits.
17	If your school participates in the school breakfast and lunch program, and if your students eat and drink the foods offered, they will get two servings from the Milk, Yogurt, and Cheese group at school. However, each day food services throw out large amounts of wasted milk. Schedule a day when the Food Service Director will let your class measure the amount of milk thrown out. Some schools empty cartons before they are put in the trash. If your school does this, save the waste and measure it in gallons. If not, see if someone can collect milk waste so that it can be measured. Report to the school the amount of milk wasted. Suggest how the amount of waste can be reduced. Your Food Service Director may have or be willing to obtain information on milk, yogurt and cheese from the Dairy Council, Milk Foundation, Milk Industry Foundation.	The nurse could talk to your class about bone growth throughout life. Ask the nurse to reinforce the concept that calcium is found in the Milk, Yogurt, and Cheese food group. If the nurse has a model skeleton, ask that this be brought to class to aid in the lesson.

LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
17 (con't)	National Cheese Institute, National Dairy Board, National Dairy Council, or Pennsylvania Dairy Promotion Program. Talk with your Food Service Director for a display of the appropriate information in the school cafeteria.	
18	Ask your Food Service Director for promotional information sent from some of the food associations and purveyors representing foods from this group. For example, the Pennsylvania Beef Council, Iowa Pork Producers Association, Lamb Education Center, National Meat and Livestock Board, American Seafood Institute, Institute of American Poultry, Beans of the West, California Dry Bean Advisory Board, and the Egg Board are just a few of the associations with educational information to share with schools.	Ask the nurse to talk to students about the role of protein in the body. Although protein has a big job to build and maintain all body cells, the recommended needs are small in comparison to our energy needs. Be sure the nurse points out that the foods that provide protein are recommended in fewer servings than the foods that provide carbohydrates for energy (Bread, Cereal, Rice, Pasta, Vegetables, and Fruits).
20	Many Food Service Directors have changed recipes for school lunch items so that they are serving less fat or sugar. Ask the director to share recipe changes so the students are aware of the efforts an the remaining good flavor and taste left in the foods served.	The concept of sparingly applies to many health issues. Invite the nurse to share with the class other ways to apply the sparingly message to health.
21	Invite the Food Service Director to talk with the class about the menu planning process. Explain that if the students eat what is offered at breakfast and lunch then more than half of the nutrient recommendations should be met right here at school.	The nurse can lead discussions of health behaviors and goal setting and making sure the goals we set for ourselves are realistic (The nurse may suggest others to talk, i.e., team coaches). Setting ourselves up for success is the best way to accomplish a goal. Therefore, children should be striving for changes that they will be able to meet.

THE FOOD GUIDE PYRAMID & THE DIETARY GUIDELINES

Since 1916 the U.S. government has designed food guides to help Americans make healthful food choices. Early guides were developed to prevent nutrient deficiencies, but today, nutrient deficiencies are less of a problem. Instead, many Americans suffer from health problems such as obesity, heart disease, and certain cancers, which result from an excess of food or imbalance of food choices.

In the early 1980's The Dietary Guidelines for Americans were written to give guidelines to help prevent these chronic diseases. In 1992 The Food Guide Pyramid was approved to augment four (marked with an *) of the Dietary Guidelines in the promotion of healthy eating to reduce the risk of diet-related diseases. (The United States Department of Agriculture ammended the guidelines in 1995.)

THE DIETARY GUIDELINES INCLUDE:

- Balance the food you eat with physical activity-maintain or improve your weight.
- Choose a diet with plenty of grain products, vegetables, and fruits. *
- Choose a diet low in fat, saturated fat, and cholesterol. *
- Eat a variety of foods. *
- Choose a diet moderate in salt and sodium.
- Choose a diet moderate in sugars. *
- If you drink alcoholic beverages, do so in moderation.

The Food Guide Pyramid's primary function is to illustrate four key dietary guidelines (*), and more specifically, to provide a memorable image of variety, moderation and proportionality.

FOOD GUIDE PYRAMID: THREE MAJOR CONCEPTS

VARIETY

Variety refers to eating foods from all the food groups as well as choosing different foods within each group. The primary focus is on the names of the food groups and the foods within the groups. The underlying message is that no one food or food group is more important than another.

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Foods are grouped by the nutrients they provide and their common use in meals. Eating foods from all the food groups provides needed amounts of nutrients for a healthful diet while providing a minimum of calories from fats, oils and sugars. Foods with added fats and sugars are high in calories with few vitamins and minerals and therefore are to be used sparingly.

PROPORTIONALITY

Proportionality means eating relative amounts of food from all the food groups. The basic premise is that different food groups have different numbers of servings recommended. Each food group has a range of recommended servings. Ranges are given because of individual variations in the need for calories and nutrients due to differences in body size, age, sex, activity level, and individual needs. The usefulness of fat and sugars depends on an individual's calorie needs.

Some children see the pyramid and because of the food group size think Breads, Cereals, Rice, and Pasta are suddenly the most important food group. Therefore you must emphasize that the number of servings does not reflect importance; all food groups are equally important.

MODERATION

Moderation is closely related to the concept of balance. It refers to eating foods in recommended serving sizes and eating fats, oils, and sweets sparingly. All the five major food groups are important and desirable; however, limiting intake of fats, oils and sugars is also important for a healthy diet.

The Food Guide Pyramid graphic does not define a serving size. This is a concern to many people when they look at the graphic and see the number of servings. The first reaction is "too much food!" However, once a serving size is seen and understood it becomes more clear that these serving recommendations are not difficult to achieve. Serving sizes for the Food Guide Pyramid are different from those on food labels. It is best just to follow those sizes designed by USDA when teaching from the Food Guide Pyramid. Also, "sparingly" is a concept, not an absolute measure. Since your students can't measure sparingly they'll need to develop an understanding of the word in context to the total diet.

Teaching moderation also includes knowing the food sources of fat and added sugar and eating them sparingly. The pyramid illustrates how foods with fat and added sugar are distributed across all the major food groups and how food choices should be modified within all the major food groups to decrease the total amount of fat and sugar intake. Therefore children need help learning to make comparisons of foods within food groups.

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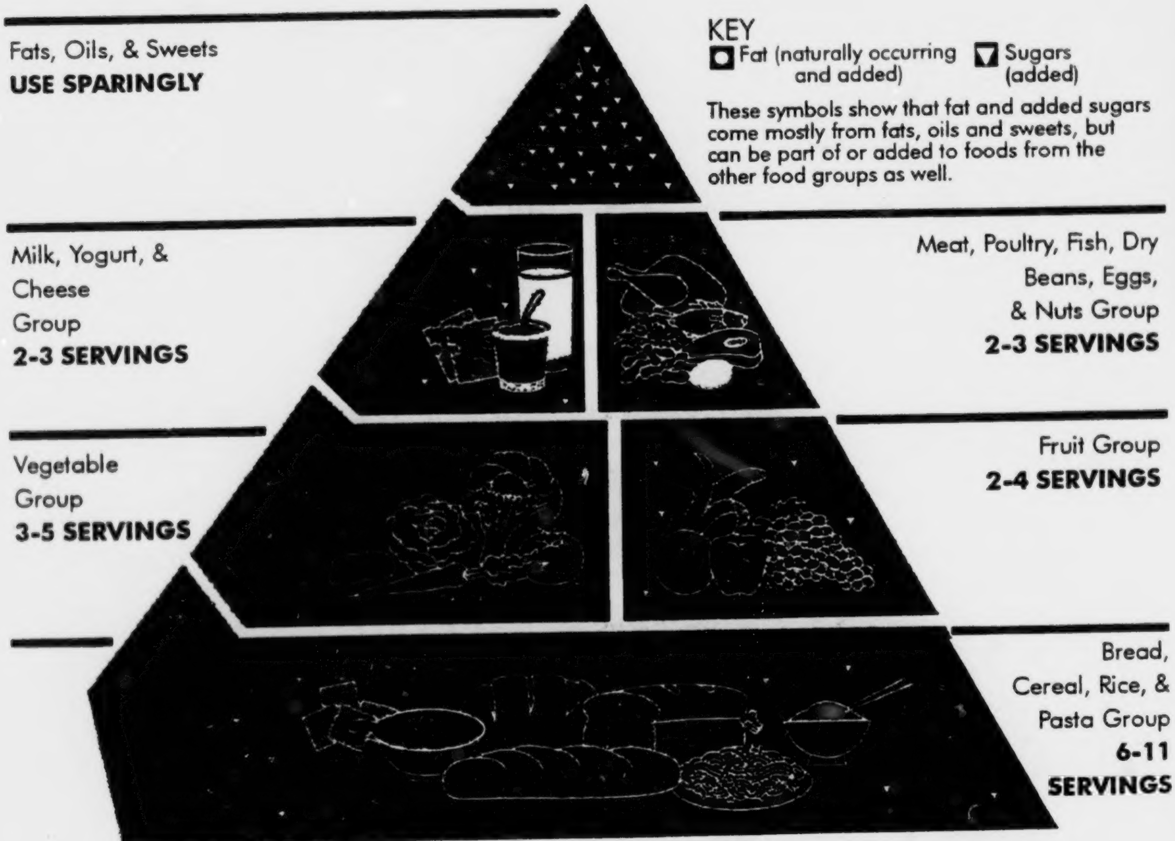
FOOD GUIDE PYRAMID

A GUIDE TO DAILY FOOD CHOICES


Fats, Oils, & Sweets
USE SPARINGLY
Milk, Yogurt, & Cheese Group
2-3 SERVINGS
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS
Vegetable Group
3-5 SERVINGS
Fruit Group
2-4 SERVINGS
Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS

KEY
▣ Fat (naturally occurring and added) ▼ Sugars (added)

These symbols show that fat and added sugars come mostly from fats, oils and sweets, but can be part of or added to foods from the other food groups as well.

SOURCE: U.S. Department of Agriculture/U.S. Department of Health and Human Services

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KEY CHANGES FROM THE BASIC FOUR TO THE FOOD GUIDE PYRAMID

- The move from the Basic Four to the Food Guide Pyramid focuses on the prevention of nutrition-related disease versus the goal of (the Basic Four) avoiding nutrient deficiencies.

- The Food Guide Pyramid addresses total calorie needs of people. The Basic Four was just the minimum number of servings needed in a day to prevent deficiencies.

- The number of food groups has changed from four, or four plus an "other", to five major food groups plus the tip.

- The names of food groups have changed from:

Basic Four		Food Guide Pyramid
Bread, Cereals and Grains	to	Breads, Cereals, Rice, and Pasta
Fruits and Vegetables	to	Vegetable group Fruit group
Milk and Milk Products	to	Milk, Yogurt and Cheese
Meat and Meat Alternatives	to	Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts
"Others"		eliminated Fats, Oils, and Sweets added.

- The number of servings has increased to meet total calorie needs.

	Number of Recommended Servings	
Food Group	***Basic 4***	***Food Guide Pyramid***
Breads, Cereals, Rice, & Pasta	4	6 to 11
Fruit and Vegetables	4	3 to 5 vegetables 2 to 4 fruits
Milk	2	2 to 3
Meat	2	2 to 3

- The number of servings has changed from a specific number to a range to reflect individual needs and differences.

- A new group has been introduced named Fats, Oils and Sweets; it is not a substitute for the former "Others" group and it does not include food products such as cake, cookies, French fries. It does include candies and beverages such as cola.

- The Food Guide Pyramid has shifted away from using words like "caution" and "avoid" for such ingredients and beverages to a more positive statement, "use sparingly."

- Cheese and cottage cheese are no longer meat substitutes.

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Funded by a grant from USDA, NET Program.

- The serving size of ready-to-eat cereal has been changed from one cup to one ounce. The serving size of fruit and vegetable juice has been changed from 1/2 cup to 3/4 cup.

PYRAMID TEACHING TIPS

- To introduce the pyramid, we recommend that you start at the bottom and move up to the tip. Also, start with simple foods, then combination foods, and later add foods with added fat and sugars.

- Note that vegetables appear first from left to right. In common language, we are used to saying "fruits and vegetables." This may be difficult to override without conscious effort. You'll need to focus on trying to say vegetables and fruits.

- It may be useful to introduce the pyramid without the sugar and fat symbols; add them after they understand the basic food groups.

- Emphasize that all food groups work together; no one food group is more important than another.

- Emphasize that the number of servings does not reflect importance; all food groups are equally important. Youngsters especially tend to mistake Breads, Cereals, Rice and Pasta as the most important food group because it is the biggest group on the pyramid.

- One easy way to remember what does and does not go into the tip of the pyramid is to relate the tip to ingredients. Usually we consume foods found in the tip in combination with other ingredients, not by themselves. The ingredients found in the tip, however, offer more energy and less nutrient value than the foods found in the other major food groups.

- The pyramid reflects recommendations to eat more complex carbohydrates and less fat and refined sugars. This would be easy if we ate all our foods in a simple, minimally processed form. Instead, we eat many processed foods like apple pie, French fries, potato chips, fried chicken, and chicken burritos instead of raw or steamed vegetables and fruits or chicken baked without the skin. Our food supply is plentiful in fat and added sugar. The Food Guide Pyramid is designed to help consumers recognize that fat and added sugar can appear in each major food group, depending on the food choices made. It also helps us recognize that some fat and added sugar in moderation is acceptable, but a diet with too many foods with fat and added sugar may lead to excess calories and a greater risk for chronic diseases.

THE BOTTOM HALF OF THE PYRAMID

The three major food groups in the bottom and widest part of the pyramid are made up of foods that originate from plants, have very little fat, and are high in complex carbohydrates. Vitamins, minerals, and water are other essential nutrients in these foods. The Dietary Guidelines for Americans suggest we choose a diet with plenty of vegetables, fruits, and grain products. Eating the recommended number of servings from these three food groups is the foundation of a healthful diet.

Even though these foods begin with little fat, food manufacturers process them; therefore the marketplace is filled with high fat breads like donuts, cakes, cookies, pie crusts and pastries. Fried vegetables are often popular with children. Many fruits are eaten canned in heavy sugar or baked in pies. Processing with added fat and refined sugar changes the energy value and nutrient quality of these food groups. The foods with fat and added sugar in these three food groups should be used sparingly.

THE TOP HALF OF THE PYRAMID

The foods in the two major food groups in the upper half of the pyramid are from animal sources, with the exception of dry beans and nuts. These foods are high in protein and provide essential fat. Beans are a naturally low fat "meat" choice. They have protein and mineral quality closer to meat than to grains or vegetables. Beans, like all plants, have no cholesterol and few saturated fats. Nuts do not contain cholesterol but have fat.

Milk has carbohydrate but meat does not. Carbohydrate and fat provide the body with energy but do not function in cell building the way protein does. In fact, it is so important to use the protein for growth and maintenance of cells that we must eat enough carbohydrate and fat to spare protein for its major job.

Fat is an essential nutrient. Fat is in both the Milk and Meat groups. However, there are high fat and low fat choices within each of these groups. Skim milk and 1% low fat milk products are the low fat choices in the Milk group. Whole milk products like hard cheeses, ice cream, and whole milk yogurts offer more fat. In the Meat group, lower fat choices include lean cuts of beef and pork, fish, dry beans, the white meat in poultry, and poultry without skin. Our food supply contains many foods high in fat. If foods are not chosen with some thought, the result can be more fat than is necessary. Excess calories from carbohydrate, protein, or fat are stored in the body as fat, and over time can increase one's risk of diseases such as heart disease and some types of cancer.

The tip of the pyramid designates a small area for the fat and sugar in the diet. There is no recommendation for the number of servings. Instead the concept of "sparingly" must be taught. Examples of fats and oils are salad dressings, mayonnaise, cooking oils, butter, and margarine. These foods offer energy with little nutrient value. Sugars such as refined sugar, honey, jelly and jams, corn syrup, candy, soft drinks, and fruit punches offer carbohydrate with little or no nutrient value. Basically, the foods in the tip offer energy with few vitamins and minerals.

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THE NEW FOOD LABEL

- Nutrition information will be virtually universal in the marketplace; almost every food will carry it.
- The information will be up-to-date with the dietary needs of Americans in the 1990s.
- Labels will show how each food fits into an overall healthy diet, nutrient by nutrient.
- Credibility will be restored to marketing claims such as "light," "fat-free," low-calorie," and "high-fiber."

New heading signals a new label.

More consistent serving sizes, in both household and metric measures, replace those that used to be set by manufacturers.

New mandatory component helps consumers meet dietary guidelines recommending no more than 30 percent of calories from fat.

Nutrients required on nutrition panel are those most important to the health of today's consumerers, most of whom need to worry about getting too much of certain items (fat, for example), rather than too few vitamins or minerals, as in the past.

%Daily Value shows how a food fits into the overall daily diet.

Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 260 Calories from Fat 120

	% Daily Value*
Total Fat 13g	**20%**
Saturated Fat 5g	**25%**
Cholesterol 30mg	**10%**
Sodium 660mg	**28%**
Total Carbohydrate 31g	**10%**
Dietary Fiber 0g	**0%**
Sugars 5g	
Protein 5g	

Vitamin A 4% • Vitamin C 2%
Calcium 15% • Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Reference values help consumers learn good diet basics. They can be adjusted, depending on a person's calorie needs.

Conversion guide helps consumers learn caloric value of the energy-producing nutrients.

Source: The FDA Consumer, May 1993

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Funded by a grant from USDA, NET Program.

Dear Parent or Guardian:

"Every Day Lots of Ways" is a nutrition curriculum your child will be taught in the near future. To help reinforce concepts taught in the classroom, students are encouraged to actively participate in the lessons through various extensions. These extensions include activities in language arts, mathematics, science, social studies, physical education and computer technology; students will also have opportunities to participate in taste tests, dramatic play, and home-based investigations. Some extensions call for tasting food which may be new and different to your child (i.e. whole grains, uncommon vegetables and fruits). Therefore, it is important to know if your child has any food allergies or intolerences that will prevent him/her from participating in these activities. Students will be encouraged to try new foods, but will not be required to do so. Please complete the bottom portion of this letter and return it to school with your child.

Thank you for your support.

Please check one of the following: Student's name____________________

____ My child does not have a food allergy or dietary restriction. He or she may participate in food tasting.

____My child does have a food allergy or dietary restriction. He or she may participate in food tasting but may not eat the following items (Please list)

____

Parent signature Date

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PYRAMID PUZZLE!

Lesson 11

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Health/Mathematics
Instructional Time: 20 minutes/part (can be broken into 3 parts)
Student Vocabulary: daily, food guide, pyramid, foundation

NUTRITION OVERVIEW

The Food Guide Pyramid was designed as a guide to daily food choices for all Americans. It is important to understand that all the groups in the Food Guide Pyramid are essential for good health.

OBJECTIVES

The student will fabricate a food guide model for good health by matching the puzzle-pieces together.

The student will apply the concepts equal to, less than, and greater than to describe the relative proportions of the food groups in the pyramid.

MATERIALS

Food Guide Pyramid Puzzle worksheet (at end of lesson, last page)
Measuring the Pyramid worksheet (at end of lesson)
scissors
glue
construction paper
ruler
Greater Than, Less Than, Equal To worksheet (at end of lesson)

Optional: Food Guide Pyramid poster (to obtain see Resource List). Young children may need to refer to the Pyramid poster when they assemble their *Pyramid Puzzle*. Most students will need to know the recommended number of servings for each food group in order to complete the *Greater Than, Less Than* worksheet.

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INFORMATION FOR TEACHERS

- The Food Guide Pyramid is an outline of what to eat each day. We should choose more servings of foods from the larger food group pieces of the Food Guide Pyramid and fewer servings of foods from the smaller food group pieces. Foods categorized in the larger groups provide more of what we need to keep our bodies healthy.
- There are five major food groups that contribute the nutrients needed for good health. All of the food groups work together. No one group is more important than another.
- The tip of the Food Guide Pyramid contains fats, oils, and sweets. This group gives the body energy (calories) but little or no additional nutrients. It is, therefore, not considered a major food group.

STEPS TO FOLLOW

Read "Further Investigations: Language Arts" found in the "Extensions" of this lesson before you begin. You may decide to incorporate this extension into the lesson.

Part A

1. Distribute the *Pyramid Puzzle* worksheet, construction paper, glue and scissors. Direct the class to cut the shapes out along the solid black line (including tabs) and assemble them in the center of the construction paper.
2. Check each student's work. Glue the title "Food Guide Pyramid" at the top and paste the pyramid directly below. (This would be an appropriate time to incorporate the extension "Further Investigations: Language Arts".)
3. Explain that the Food Guide Pyramid is a guide to follow for healthful eating. Ask students to describe what they see. Descriptions should include the structure being broad at bottom, narrow at the top. Ask the students to identify foods pictured in the pieces of the puzzle. Name the groups according to the Food Guide Pyramid as the students identify items pictured on the puzzle pieces. Lastly, have them write in the recommended number of servings. This information is included in the unit introduction.

ask

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Part B

4. Distribute the *Measuring the Pyramid* worksheet. Instruct the students to use their rulers to rank order the pieces of the Food Guide Pyramid from biggest to smallest. Note: Measure either the top or bottom consistently. You may need to briefly review how to write fractions since some of the pieces do not measure as whole numbers. Note: the milk and meat sections are equal in size.

ask

5. Ask the students to describe and compare the sizes of the puzzle pieces using less than, greater than, or equal to. Ask students why the pieces are different sizes. Which piece is largest? (Bread, Cereal, Rice and Pasta) Which piece is smallest (Fats, Oils, and Sweets) Why? (The larger pieces represent more servings than the smaller pieces. Reinforce that the base is the biggest part of the pyramid; it takes up the most space. The foods in the bottom group, likewise, should also make up the biggest part of the foods we eat. As we move up the pyramid, we should eat fewer servings from the food groups. These food groups are not less important, we just need lesser amounts of them!)

Part C

6. Review the terms "more than" or "less than" in relationship to the food groups. For example, the number of servings recommended from the Bread, Cereal, Rice and Pasta group is more than the food recommended from the Milk, Yogurt, and Cheese group. Or the recommended number of servings from the Fruit group is less than the recommended number of servings from the Vegetable group. Or the amount of food we eat from the Milk, Yogurt, and Cheese group should be equal to the amount we eat from the Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group.

7. Introduce or review the symbols for equalities and inequalities (<,=,>). Repeat the procedure outlined in step 6 above using the mathematical symbols. Distribute the *Greater Than, Less Than, Equal To* worksheet. This can be completed independently or as a class. Write the number of servings recommended for each group on the board. Draw to the students attention that they are to compare the number of servings recommended for each food group, not the number of foods pictured.

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8. Explain that a jigsaw puzzle is a puzzle in which all the pieces fit together to make one whole picture. The foods in the Food Guide Pyramid work together to help you have a healthy body. Explain that just because one food group is bigger than another does not mean that the group is more important. All the food groups are important for health.

EXTENSIONS

Bulletin Board Idea
Display the Food Guide Pyramid Poster.

Careers
USDA Professional
Health Educator
Consumer Research Analyst
Dietitian

Class Project
As a class project, build a large pyramid out of cardboard boxes. As the unit progresses, decorate the pyramid with food pictures from food advertisements, food packages, and other related information from newspapers and magazines.

Food Service Cooperation
Inform the Food Service Director that your class is beginning the unit on the Food Guide Pyramid. Suggest she/he decorate the cafeteria or that your students use some of the work they will be generating in this unit to decorate the cafeteria. Ask the Food Service Director to stress eating the wide variety of foods found on the Food Guide Pyramid through a class discussion or bulletin board exhibits.

Further Investigations
Language Arts

- Help the students organize a folder of the unit. Title the folder "*Pyramid Power.*" Use the pasted puzzle as the cover design. Fold a large piece of construction paper in half; the students can glue the puzzle onto the front half. Save the folder so that all the worksheets and parts of the unit can be stored together. At the end of the unit ask the students make a title page, table of contents organized by food groups, a brief description of the Food Guide Pyramid, and a conclusion in their own words about what the Food Guide Pyramid means to them in their lives.

- Read Cloudy With a Chance of Meatballs. As the different foods are read, direct the students to place them in the proper food group in the Food Guide Pyramid. They can write on the margin of the *Pyramid Puzzle* worksheet or use a pyramid drawn on

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a separate piece of paper.

- Play a game using the food group lists (appendix B). Randomly call out foods belonging to any of the groups. If the students guess the right food group they get a point. If they miss, the teacher gets a point. (For example: Call out olives. The correct response would be Fruit group.)

Social Studies

Challenge the students to find information on the Great Pyramids. Recognize either or both the American Indian pyramids and the Egyptian pyramids. Make it clear to the students that the only similarity between these pyramids and The Food Guide Pyramid is its shape. Use the *Pyramid at Giza* worksheet located at the end of this lesson. Ask students to find out if there were pictures (hieroglyphics) of food on the walls of Egyptian pyramids. Foods of the time of the Great Pyramids in Egypt were: antelope, beef, duck, geese, grape wine, date wine, palm wine and cheese. Since the pyramids were actually built as tombs, people filled them with items of comfort for use in the next life. They filled the pyramids with bread, duck, cake, vegetables and beef. The American Indian pyramids were built by the Aztecs, Mayans, and Peruvians. One food drawn on the walls of the American Indian pyramids was corn. See how many other foods your students can find illustrated on the walls of the pyramids by using the books in the school library.

Invite the Nurse

Inform the school nurse that you are beginning a unit on The Food Guide Pyramid. Invite the nurse to discuss the importance of diet to total health or ask the nurse to arrange for an expert or professional to come to your class (i.e., Registered Dietitian, or representative from the National Dairy Council). Just as the students have recognized that all the pieces of the puzzle fit together for a whole guide, all the food groups fit together for a total diet. Encourage students to make the connection that diet is an important piece of total health. (Rest, play, daily hygiene, and avoiding drugs and tobacco are also important for good health.) The concept of taking care of ourselves through proper diet should be stressed.

Taking It Home

Assign students to look in cupboards to count the number of food packages that have a picture of the Food Guide Pyramid on them. Discuss findings.

Resources (See Resource List for descriptions.)

Cloudy With a Chance of Meatballs by Judi Barrett
The Edible Pyramid Good Eating Every Day by Loreen Leedy

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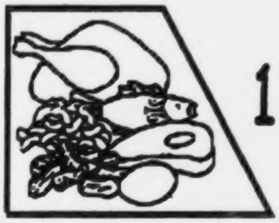
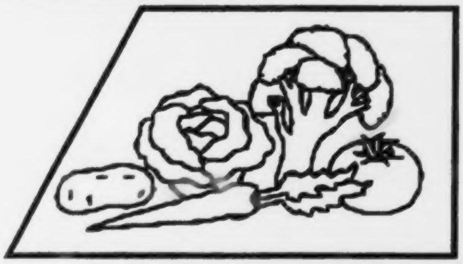
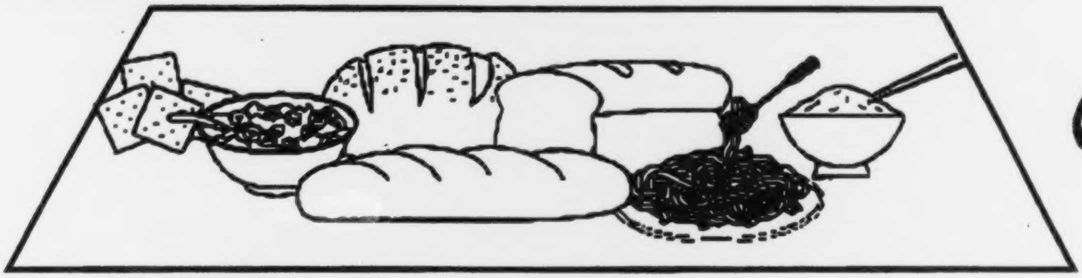
MEASURING THE PYRAMID

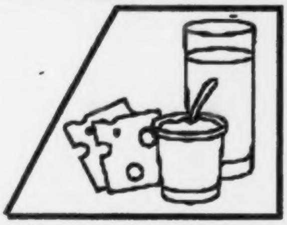
Name: Key Date: ____________

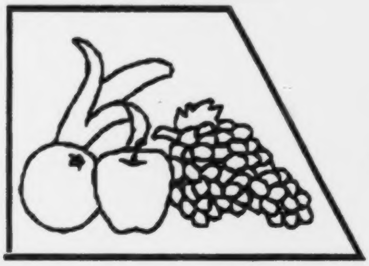
Use your ruler to measure the bottom length of each of the pieces. Order them from biggest to smallest. Number the biggest piece "1" and the next biggest "2" and so on. (Hint: Two of the pieces are the same size, so they will have the same number.)

5  1½"

2  2½"

1  6"

4  1½"

3  2"

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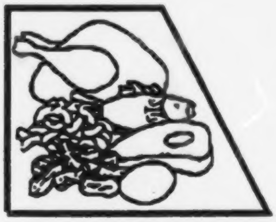
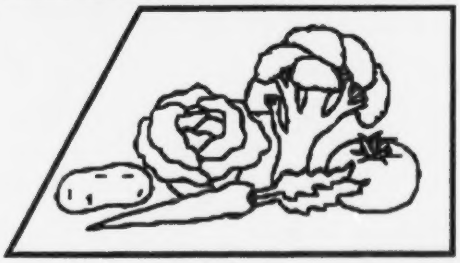
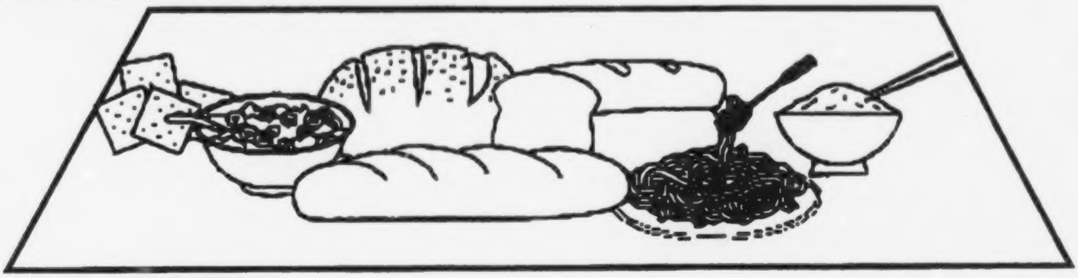
MEASURING THE PYRAMID

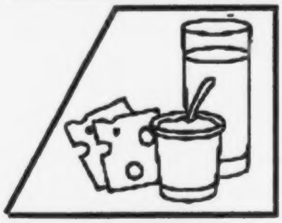
Name:________________________ Date:____________________

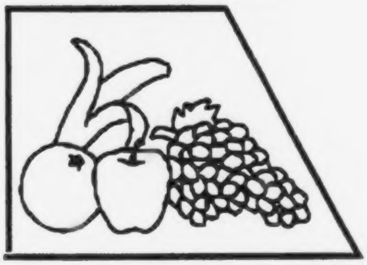
Use your ruler to measure the bottom length of each of the pieces. Order them from biggest to smallest. Number the biggest piece "1" and the next biggest "2" and so on. (Hint: Two of the pieces are the same size, so they will have the same number.)











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GREATER THAN, LESS THAN, EQUAL TO

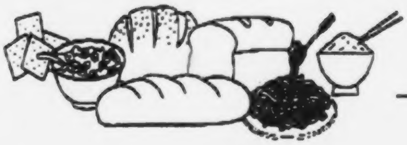
Name: Key Date: ______________

Depending on how many foods you should eat from the food groups, fill in the blank with >, < or =.

< means less than

= means equal to

> means more than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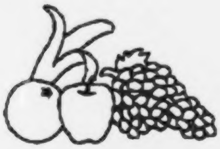

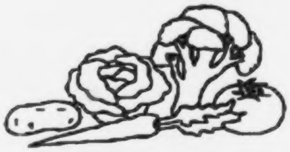
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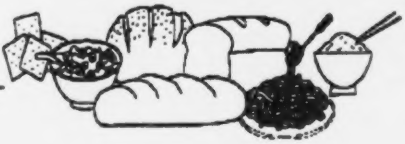

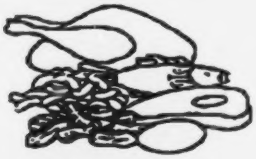
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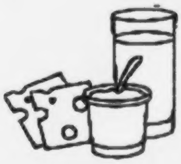

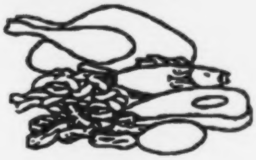
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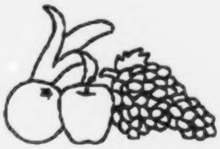

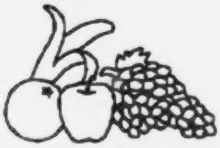
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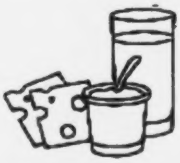

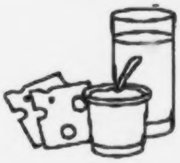
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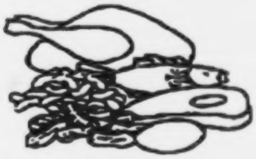

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GREATER THAN, LESS THAN, EQUAL TO

Name:______________________ Date:______________________

Depending on how many foods you should eat from the food groups, fill in the blank with >, < or =.

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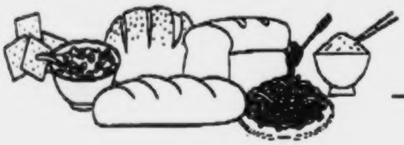

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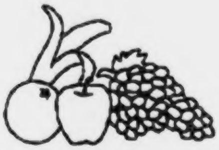

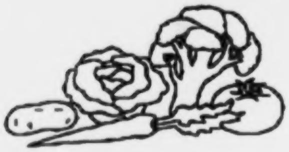

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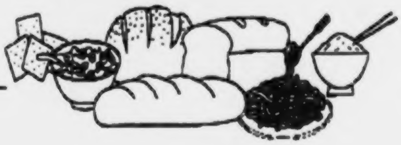

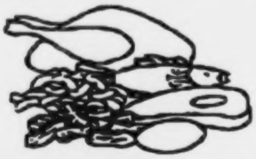

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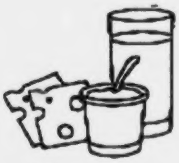

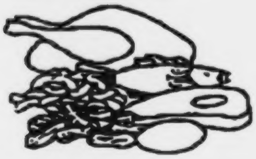

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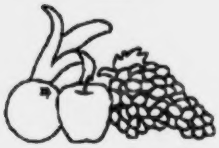

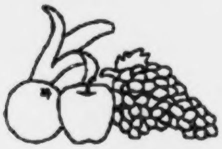

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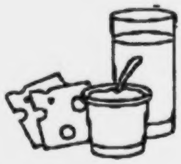

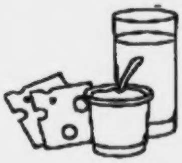

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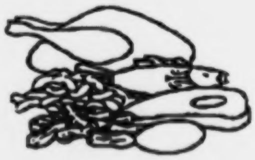

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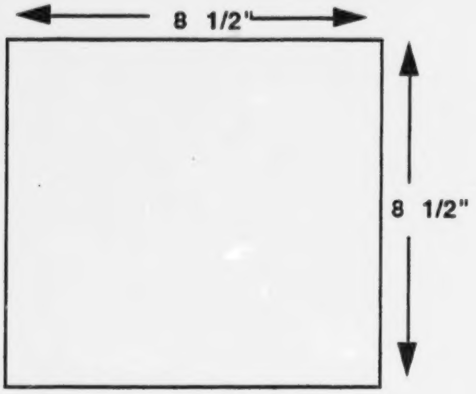
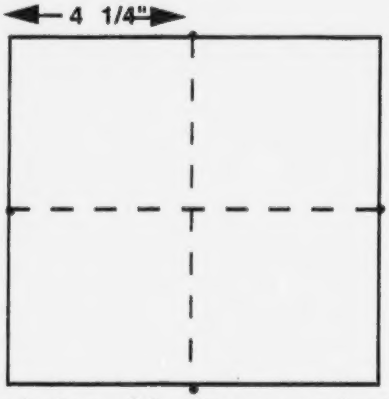
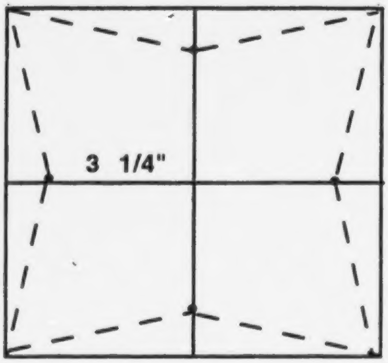
PYRAMID AT GIZA WORKSHEET

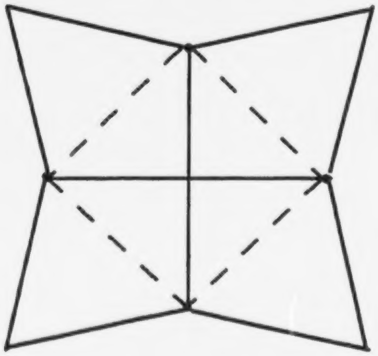


Cut a sheet of paper so that it is 8 1/2 inches square.

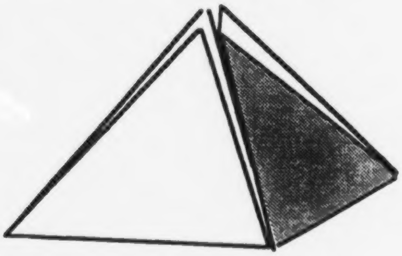


Mark the midpoint on each side. Draw a line (black) connecting opposite center point.

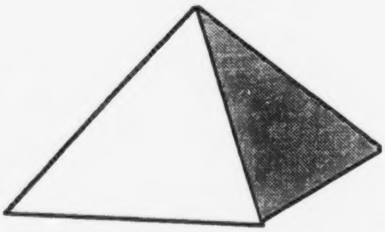




Measure 3 1/4 inches out from the center on each of the four lines. Draw a line from each corner of the paper to each point you just marked. Cut along these lines to see what to throw away. Draw lines as shown above.



Fold along the lines.
Tape the edges together.



Congratulations! You now have a pyramid that is a scale model of the Great Pyramid at Giza.

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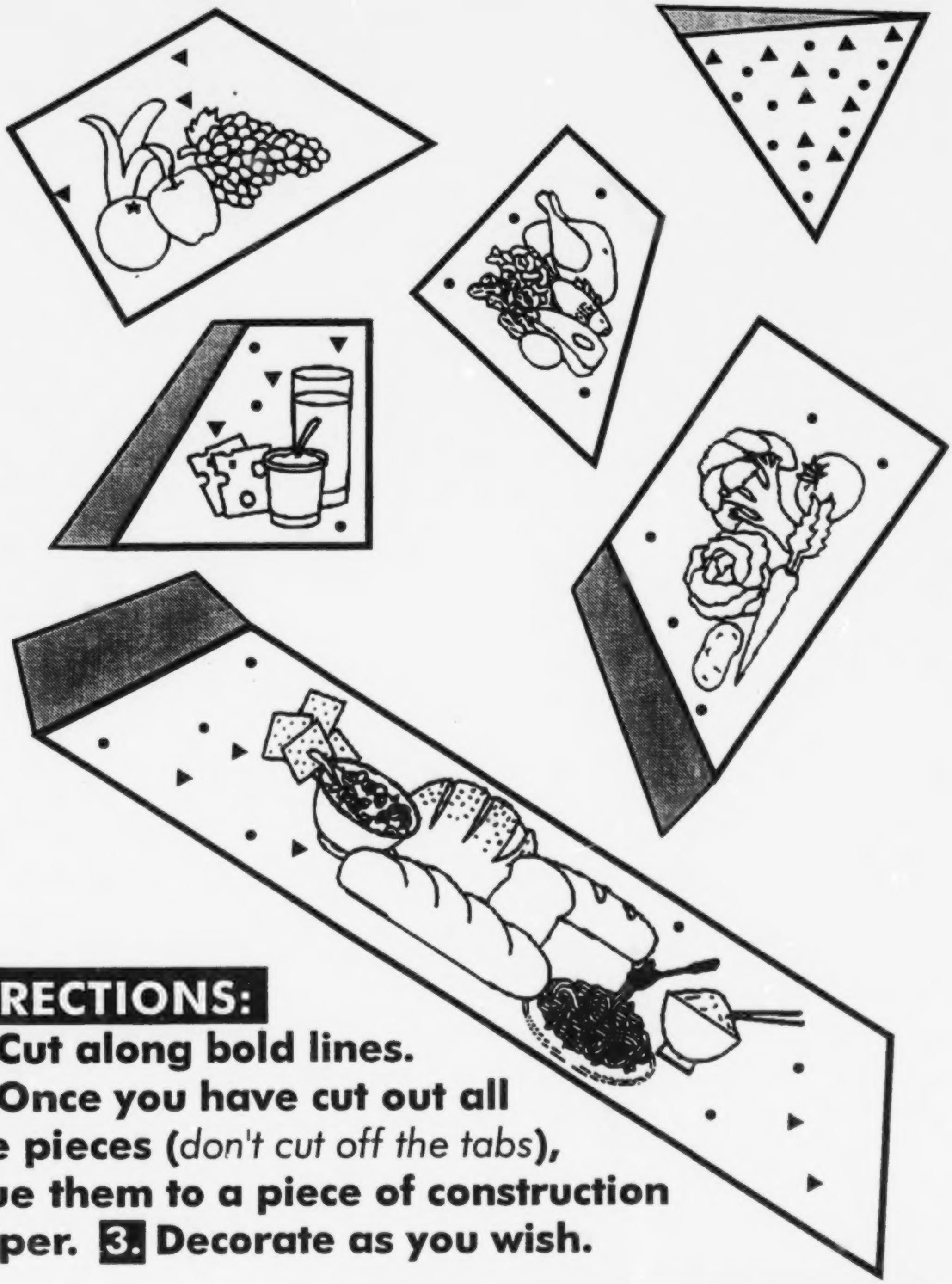

DIRECTIONS:

1. Cut along bold lines.
2. Once you have cut out all the pieces (*don't cut off the tabs*), glue them to a piece of construction paper. 3. Decorate as you wish.

FOOD GUIDE PYRAMID PUZZLE

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BUILDING PYRAMIDS
Lesson 12

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Mathematics/Art
Instructional Time: 40 minutes/part (3 parts)
Student Vocabulary: pyramid, triangle, square, base, foundation, three dimensional, serving size, serving, minimum, maximum

NUTRITION OVERVIEW

It is important to distinguish between the base and the top of the Food Guide Pyramid. The differences in shape and size are associated with the recommended servings of each food group. Students will realize that the base of any pyramid, especially The Food Guide Pyramid, is its foundation.

OBJECTIVES

The student will build a three dimensional pyramid using a pattern made of four triangles and a square base.

The student will create a pyramid using a set of boxes.

MATERIALS

Approach A
3-D Pyramid Model worksheets (at end of lesson) (part 1 and 2 for each student)
scissors
glue (or stapler)
construction paper
ruler
Approach B
1/2 pint-sized milk cartons from the school cafeteria (need 16* for one pyramid)
tape
6 different colors of construction paper
Milk Carton Pyramid reference sheet (at end of lesson)

* **Note:** You'll need to decide how many pyramids you are going to make to determine how many cartons to collect. Each milk carton represents a serving of food. Sixteen

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cartons will make one pyramid illustrating the minimum number of servings for each food group and one for the tip. If you want to illustrate the maximum or the total range of servings for all the food groups you will need 27-29 milk cartons per pyramid, letting the tip be made of 1-3 cartons. The pyramid you create can have a pointed or flat top.

INFORMATION FOR TEACHERS

- The shape of the pyramid represents strength and a firm foundation, derived from many different blocks that fit together to make a solid, firm structure.
- There are five major food groups that contribute the nutrients needed for good health. The tip of the Food Guide Pyramid contains fats, oils, and sweets. This group gives the body energy (calories) but little or no nutrients. It is therefore not considered a major food group.
- All of the food groups in the Food Guide Pyramid work together. No one group is more important than another. For example, even though the recommended number of servings from the Breads, Cereal, Rice, and Pasta group is greater than the number from the Milk, Yogurt, and Cheese group, both food groups are essential for good health.

STEPS TO FOLLOW

This lesson offers two approaches to learning the concepts in the Food Guide Pyramid. You may choose both or only one. There is a physical education extension that can be used as a third approach.

Approach A - Pyramid Table Tent

ask

1. Draw a square on the board and ask the students to describe how a square is formed (four lines the same length that come together). Find objects in the classroom that are squares.

2. Draw a triangle and repeat the process in step 1. Find objects in the classroom that are triangles.

3. Inform students that the pyramid puzzle they completed (in Lesson 11) was a flat picture of the pyramid. Today they will form a three dimensional structure combining four triangles and a square.

4. Distribute the *3-D Pyramid Model* worksheet, glue, and

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scissors. Direct students to cut the shapes along the solid black line, fold along the dotted lines, and glue on the tabs. (Some teachers prefer using a stapler over glue.)

5. The student may cut a base to fit on the bottom of the pyramid by cutting out a six inch square from construction paper. Students may choose to paste the pyramid to the center of the construction paper, leaving a border around the edges. **Note:** Cutting a 6 inch base takes up less room and the pyramid can be displayed on the students desktop where it will serve as a useful reference throughout the entire unit.

6. Ask students to describe a pyramid using relative terms such as "larger than", or "a broad base and a narrow top".

ask

7. Ask students to describe characteristics of the pyramid they built. Explain that the Food Guide Pyramid is a pattern to follow for healthful eating. Ask how many food groups are on the pyramid and the groups' names. Explain that the base is the biggest part of the pyramid; it takes up the most space. The foods in the bottom group likewise should also make up the biggest part of the foods we eat. As we move up the pyramid, we eat fewer servings from the food groups. These food groups are not less important, we just need lesser amounts of them.

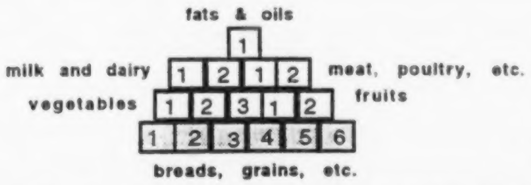
ask

You may want to create an example of minimum and maximum to compare.

Approach B - Pyramids out of milk cartons

1. Collect square, 1/2 pint milk cartons at lunch. Sixteen milk cartons are needed to make one pyramid that illustrates the minimum number of servings to eat in one day. At least 27 cartons are needed to make one pyramid that illustrates the maximum number of servings. (An example of minimum servings is shown below). You may decide to make four or five pyramids for the class and let the students work in groups. If so, arrange with the Food Service Director in advance to collect milk cartons.

2. Cut the flap off the top part of the carton and discard.



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3. Rinse cartons and allow to dry.

4. Using six different shades of colored paper, you should (teacher) measure 6.9 cm squares and cut these out. If you choose to represent the minimum number of servings you'll need six purple squares; three blue squares; two pink squares; two yellow squares; two red squares; and one white square for each pyramid. If you choose to show the maximum range you'll need eleven purple squares; five blue squares; four pink squares; three yellow squares; three red squares; and one to three white squares. Have students tape the colored paper squares onto the front of the milk cartons.

5. Challenge the students to arrange the milk cartons into a pyramid. The only requirement is that the like colors must appear together and that the pyramid shape must be retained. When the students have built their pyramids, ask if they would have a pyramid if they had put the one white on the bottom or the three yellow etc.,. Reinforce that to build a pyramid you must use all six purple squares on the bottom and to build the next level you need all of the blue and pink group and so on.

ask

6. Ask the students to think of this idea in terms of the food groups of the Food Guide Pyramid. Each color represents a food group while each milk carton represents one serving of food in a food group. Students will count the number of cartons (meaning servings) present in each food group. Refer to the Milk Carton Pyramid reference sheet.

7. Have the students write down on strips of paper what was served and eaten for the school breakfast and lunch and put each strip into the proper milk carton. Each strip represents a serving. Have the students record this information on a sheet of paper. Let the students then conclude how many servings of bread, vegetables, fruits, milk and meats they will need to eat at snacks and dinner tonight to meet the minimum number of servings for the day. (Remind the students that if a food was served but they didn't eat it, it shouldn't be counted.) **Note:** This requires each student to have a pyramid unless it is done one at a time and the strips are removed after each participant.

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8. Have these pyramids available for the students to refer to when sorting foods into servings to meet daily recommendations. They can sort using the food group sorting cards (appendix A), pictures of foods from grocery flyers, or magazine ads for foods.

EXTENSIONS

Bulletin Board Idea

A flat milk carton pyramid can be mounted on the bulletin board using thumb tacks. You may want to show the maximum number of servings by building a pyramid with 27 milk cartons.

Class Project

- Plan a pyramid party. Make a pyramid table tent based on other projects from this lesson. Put holes on either side and run a string through them. You have a pyramid party hat. Play "Pin the Food Group on the Pyramid." Have a large picture of the pyramid on the wall. Give the child a picture of a food. Ask the child to name the food group for that food and to locate the correct food group on the pyramid. Blindfold the child. Then have the child try to pin the picture on the pyramid without looking.

- Have students play a "guessing" game. Using the sorting cards or any other food pictures, have one student volunteer (choose a picture) give the class "clues" about the food picture she/he has chosen. First, have the student state the food group to which the food belongs. Then, have the student volunteer give the class clues about the food until it is identified.

- Referring to approach B in this lesson, students may take turns re-building the pyramid with the milk cartons. To reinforce learning, require each student to name a different food in order to complete the task.

Further Investigations
Mathematics/Health

- Teach minimum, maximum, and range (see Lesson 28, for example). Explain that the Food Guide Pyramid provides ranges of servings for each food group because energy and nutrient needs vary depending on the age, activity level and the size of a person as well as whether the person is male or female. Generally, older people need fewer calories than younger people; active people need more calories than less active people; and teenage boys and men need more calories than women or boys and girls.

Perhaps you can create a number line for each food group. This could be used to reinforce knowledge of the range or give students experience finding the mid point of a range.

- Explain that children (both girls and boys) should eat the middle number (approximately) in the range of servings from each group. Ask students to define midpoint; facilitate finding of midpoint for all groups of the pyramid. For example, the midpoint of the fruit group is 3. Remind students to try to eat at least the minimum number of servings from each of the five major food groups. Point out that the range is wider at the bottom of the pyramid because we need more of these foods for energy as well as for vitamins to use to grow. We do not grow a lot each day; instead, we grow slowly over time so the foods that supply protein for growth are needed daily but in smaller quantities. No range is given for the Fats, Oils, and Sweets because they are foods that give energy but few vitamins and minerals. Therefore, these foods should be used "sparingly."

- Teacher should bring in an assortment of packages (with food labels) and ask the students to do the same. Have students group the foods by food group and list them on the board with their serving size (from food label). You may also refer to the Milk Carton Pyramid reference sheet for proper serving sizes. Bring in (or borrow from foodservice) a food scale and utensils. Measure and weigh the serving sizes, record measurements on the board, and lay the food servings out for the students to view. Have students compare serving sizes of different foods and food groups.

Physical Education
Pyramids on the playground
Hopscotch

- Make a hopscotch board in the shape of a pyramid on the playground with chalk or in the classroom or gymnasium with masking tape. When a student throws the rock and it lands on a food group the person must name a food in that group. As they play the game a food may not be repeated.

Tier 1 - Jump with one foot on the first tier, the Bread, Cereal, Rice, and Pasta group.
Tier 2 - Two feet down for the second tier, one foot in the Vegetable group, one foot in the Fruit group.
Tier 3 - Two feet down - one in Milk, Yogurt and Cheese and one in Meat, Poultry...
Tier 4 - The tip - on one foot hop around on Fats, Sweets, and Oils.

Basketball

- Make a pyramid with masking tape on the floor in front of the basketball hoop with the pyramid tip furthest from the rim of the basketball hoop.

- Begin by standing in the Bread, Cereal, Rice and Pasta group. The student must get 6 baskets standing anywhere within this group. Move to the Vegetable group. While standing in the Vegetable group the student must get 3 baskets.
  Move to the Fruit group, where the student must get 2 baskets.
  Move to the Milk, Yogurt and Cheese group, where the student must get 2 baskets.
  Move to the Meat, Poultry, Fish... group, where the student must get 2 baskets.
  Move to the tip, swish, get one!

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Jacks

- You need a set of jacks with either six or eleven jacks and a ball. Throw the jacks. (If the students play using the minimum number of servings per food group then you only need six jacks. If they are playing for the maximum, they should follow the steps in parentheses.) Encourage students to recite what each round (number of jacks they pick up) represents.

Determining whether to base this activity on minimum or maximum number of servings depends on the teacher's assignments.

Pick up one jack at a time; that is sparingly!
Pick up 2 jacks at a time; that is minimum Milk, Yogurt and Cheese. (Pick up 3; that is the maximum.)
Pick up 2 jacks; that is minimum Meat, Poultry, Fish, Dry Beans, Eggs and Nuts. (Pick up 3; that is the maximum.)
Pick up 2 jacks; that is the minimum Fruit. (Pick up 4; that is the maximum.)
Pick up 3 jacks; that is the minimum Vegetables. (Pick up 5; that is the maximum.)
Pick up 6 jacks; that is the minimum Bread, Cereal, Rice and Pasta. (Pick up 11; that is the maximum.)

Jump rope

- The first student runs through saying, "Wee - just a little - Fats, Oils, and Sweets!" All students follow this first step.

- Everyone takes a turn jumping two times for the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group. As the student jumps he/she says "I like to eat ____!" and names a food from this group. Each person must name a food different from the ones already named.

- On the next turn the student jumps in and announces the Milk, Yogurt, and Cheese group and jumps two times. As the student runs out, he/she says, "I like to eat ______," and names a food from this group.
- The same pattern continues...
  Jump in and jump two times for the Fruit group;
  jump in and jump three times for the Vegetable group;
  jump in and jump six times for the Bread, Cereal, Rice, and Pasta group.

- A variation of this may be to jump all the numbers in the range. For example, students would not move out of the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group until they jump twice and then on the next turn jump three times. Each time in that group the students should name different foods.

Resources (See Resource List for description)
The Edible Pyramid, Good Eating Every Day by Loreen Leedy

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MILK CARTON PYRAMID REFERENCE SHEET (TO BE USED WITH APPROACH B)

Serving Size Key:	1 carton equals:
Bread	1 slice of bread half a hamburger or hot dog bun half a bagel or English muffin 1/2 cup of pasta, rice or cooked cereal 1 ounce of cereal
Vegetable	1 cup of raw leafy vegetables 1/2 cup cooked or chopped vegetables 3/4 cup vegetable juice
Fruit	1 medium apple, orange, or banana 1/2 cup chopped, cooked, or canned fruit 3/4 cup fruit juice
Meat	2-3 ounces of cooked lean meat, poultry or fish 1 cup cooked dry beans 2 eggs 4 tablespoons peanut butter
Dairy	1 cup milk 1 cup yogurt 1 1/2 ounces of natural cheese 2 ounces of processed cheese

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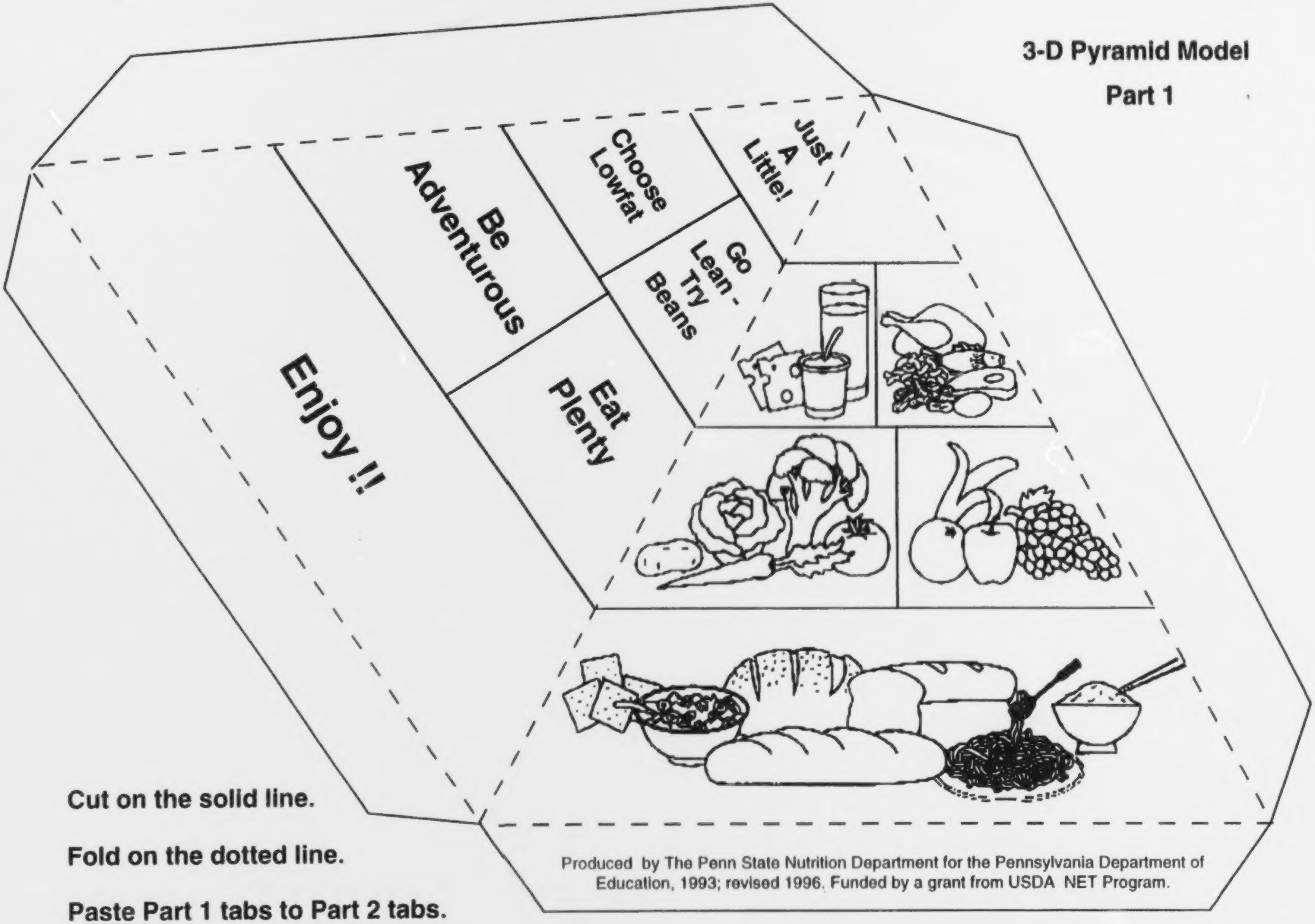
3-D Pyramid Model

Part 1


Just
A
Little!
Choose
Lowfat
Go
Lean -
Try
Beans
Be
Adventurous
Eat
Plenty
Enjoy !!

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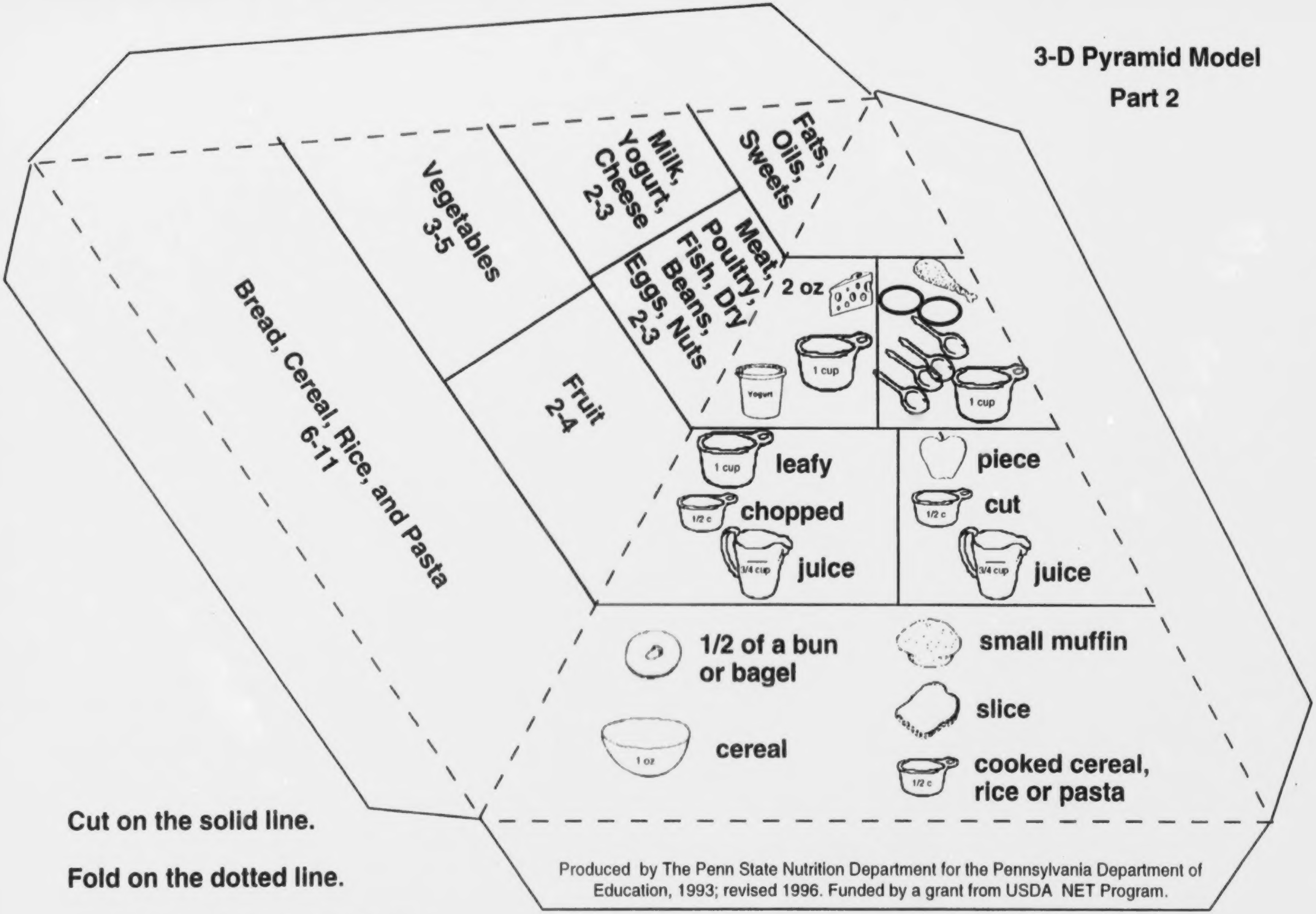
Cut on the solid line.

Fold on the dotted line.

Paste Part 1 tabs to Part 2 tabs.

3-D Pyramid Model

Part 2


Bread, Cereal, Rice, and Pasta
6-11
Vegetables
3-5
Fruit
2-4
Milk, Yogurt, Cheese
2-3
Meat, Poultry, Fish, Dry Beans, Eggs, Nuts
2-3
Fats, Oils, Sweets
2 oz
Yogurt
1 cup
1 cup
1 cup
leafy
1/2 c
chopped
3/4 cup
juice
piece
1/2 c
cut
3/4 cup
juice
1/2 of a bun or bagel
small muffin
slice
1 oz
cereal
1/2 c
cooked cereal, rice or pasta

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Cut on the solid line.

Fold on the dotted line.

Paste Part 2 tabs to Part 1 tabs.

FROM FARM TO FOOD
Lesson 13

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Social Studies
Instructional Time: 30 minutes/part (can be done in 1 to 3 parts)
Student Vocabulary: Pennsylvania agriculture, food (agricultural) origins, cereal, pasta, poultry, dry beans, commodity,

NUTRITION OVERVIEW

By the time food reaches our kitchens many products bear little resemblance to their original form. Students will trace a processed food product back to an original source to re-establish that connection and understand its placement in the Food Guide Pyramid.

OBJECTIVES

The student will trace the processing of two foods back to their original source following a video presentation.

The student will identify a number of healthful foods in our food supply that originate at farms in Pennsylvania.

MATERIALS

"Farm to Food" videotape (11 minutes; included with curriculum)
Where Does It Come From? worksheet (at end of lesson)

INFORMATION FOR TEACHERS

- As an option, you may refer to Pennsylvania's Energy Contributions Lesson 25, for product maps (and uses) to include in this lesson. These maps are useful in helping students to identify where food items are produced in Pennsylvania.
- Many children have difficulty tracing a food back to its agricultural origin.
- Pennsylvania agribusiness grows and produces foods for the state as well as the nation.

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- Pennsylvania manufacturers produced 72.8 million gallons of ice cream in 1994, second nationally to California's 111.5 million gallons.

- An estimated 43,000 gallons of maple syrup were produced in Pennsylvania in 1995. The following states including Pennsylvania produced the U.S. maple syrup crop valued at $25.5 million : Vermont , Connecticut, Maine, Massachusetts, New Hampshire, Michigan, New York, Ohio, and Wisconsin.

- Pennsylvania ranks 25th in the nation for honey production. Honey producers received an average price of 58 cents per pound for the 1994 crop. The average yield was 47 pounds of honey per colony.

- Pennsylvania is fourth in the nation's ranking in milk production. California is first, followed by Wisconsin, then New York. The 1994 average milk production per cow was 16,009 pounds for the year. This would supply a family with 37 gallons of milk each week!

- Hershey's Food Corporation's main chocolate producing plant is housed in Hershey, Pennsylvania. About 50,000 cows are needed to provide enough milk for one day's production of products. These cows produce 1.5 million pounds or 700,000 quarts of milk every day. Each day, 33 million Hershey's Kisses™ chocolates can be produced. Surprisingly, it takes about 10 days to make a Hershey's Milk Chocolate Bar™. Hershey's number one selling product is Reese's Peanut Butter Cups™. (Source: Hershey Web Page: http://www.hersheys.com)

- To obtain information about your state's agricultural products, contact your local cooperative extension agency.

STEPS TO FOLLOW

1. Explain to the students that the Food Guide Pyramid is a national health guide. But foods come from all over our state, nation and world.

2. Explain that "Farm to Food" is a video presentation on the agricultural commodities of Pennsylvania and the places they occupy on the Food Guide Pyramid.

3. The video can be shown in segments or as a whole. You may want to show the video in its entirety first and then review one food group at a time as you move through the lessons in this unit.

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4. After viewing the entire video or the segment on vegetables, ask your students to view the vegetable segment again. This time have them look for the steps involved in processing a tomato.

5. Discuss the steps together as you view the video. Distribute the *Where Does It Come From?* worksheet. Help your students trace the steps from growing the tomato to purchasing tomato sauce at the grocery store.

6. Repeat the same procedure tracing the steps of the egg.

Optional: Refer to the Pennsylvania production maps. Discuss with students that foods they eat originate in various parts of the state.

EXTENSIONS

Act It Out

Act out the production of the tomato and the egg. Have the students bring in the props from home or make the props in class.

Bulletin Board Idea

Take any food commodity produced in Pennsylvania and feature the food and its production steps on the bulletin board.

Careers

Farmers
Processors
Truckers
Warehouse workers
Cooks
Grocers

Class Project

Visit an agricultural production site in your area, such as a dairy farm or chicken farm. Or using the resources from your library as guide, build a model dairy farm or chicken farm in the classroom.

Food Service Cooperation

- Give students the monthly lunch menu and challenge them to determine if any meals are composed of only foods produced in Pennsylvania. They can use the information from the Farm to Food video to help them.

- Have a "Let's Salute Pennsylvania Agriculture Day" in the cafeteria. Ask the Food Service Director to serve a menu with only foods produced in Pennsylvania. (The students can suggest this menu after completing the activity above.)

Taking It Home
Ask the students to review their family's grocery list with a member of their family. Are there foods on the list that are produced in Pennsylvania?

Taste Test

- If you have local food production plants in your area, bring in a sample of the food and have a taste test. Some producers might donate the foods.

ALLERGY CAUTION!

- Taste some of the less popular foods highlighted on the Farm to Food video (e.g. mushrooms — raw with dip or cooked on a pizza, etc.)

Resources (see Resource List for description)
How a Seed Grows by Helene J. Jordan
How Do Apples Grow? by Betsy Maestro

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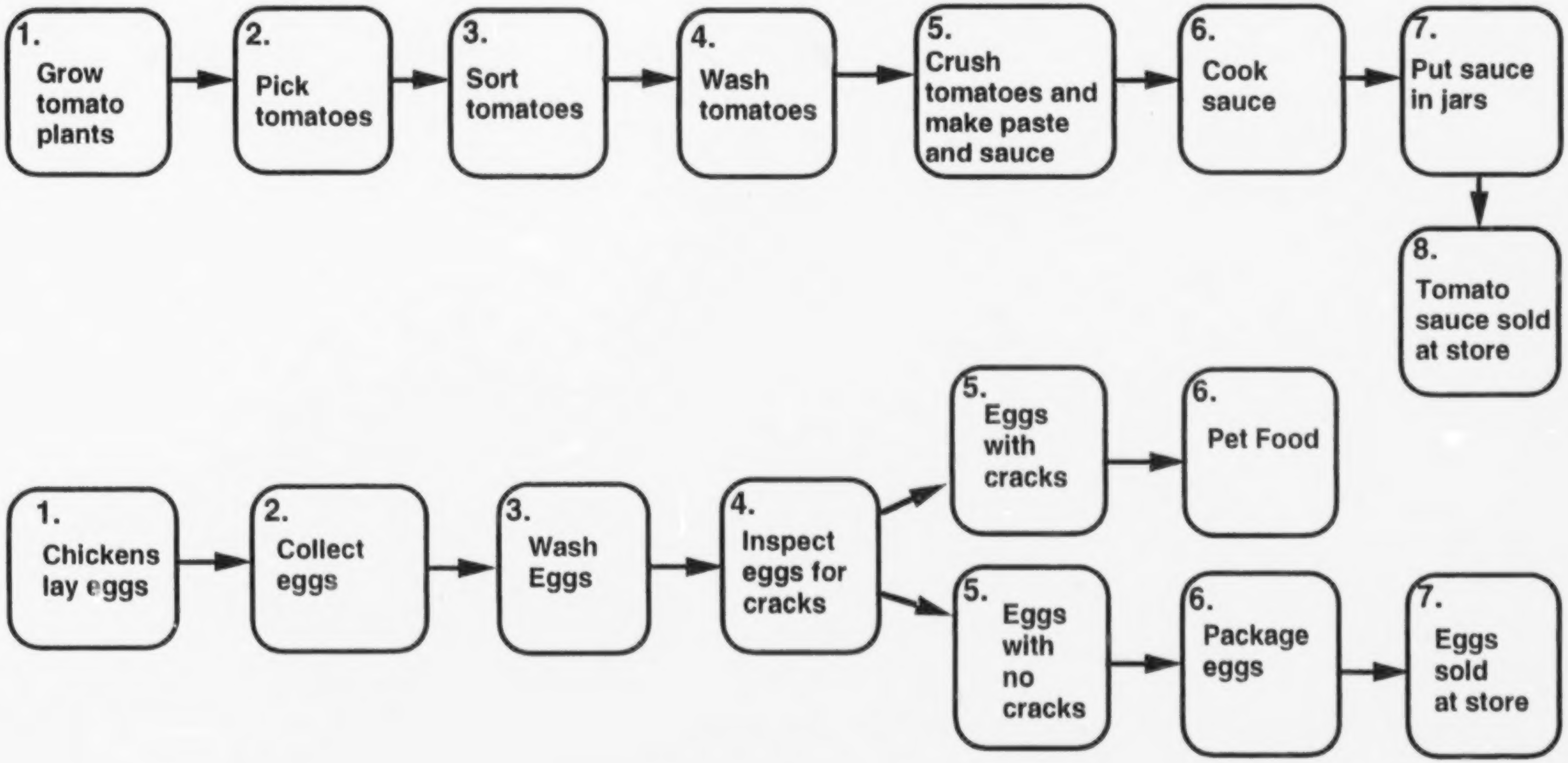
Where Does It Come From?
Answer Key

Name ______________________ Date ______________________

You have just gone to the store with your family. You bought tomato sauce and eggs, among other things. Where did these foods really come from? In the blanks below, trace the steps the tomatoes and eggs took to get from farm to food.


1. Grow tomato plants
2. Pick tomatoes
3. Sort tomatoes
4. Wash tomatoes
5. Crush tomatoes and make paste and sauce
6. Cook sauce
7. Put sauce in jars
8. Tomato sauce sold at store
1. Chickens lay eggs
2. Collect eggs
3. Wash Eggs
4. Inspect eggs for cracks
5. Eggs with cracks
6. Pet Food
5. Eggs with no cracks
6. Package eggs
7. Eggs sold at store

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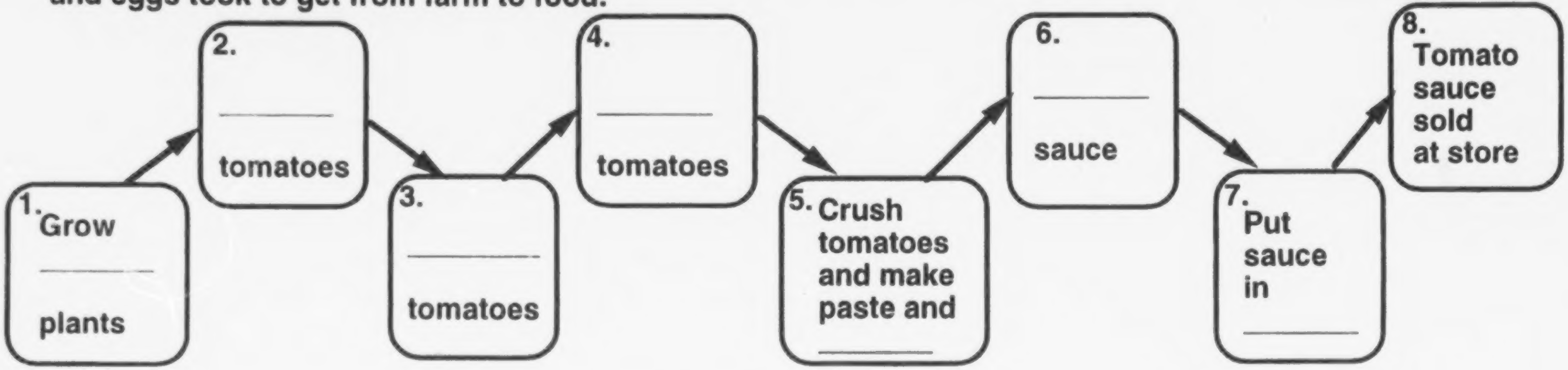
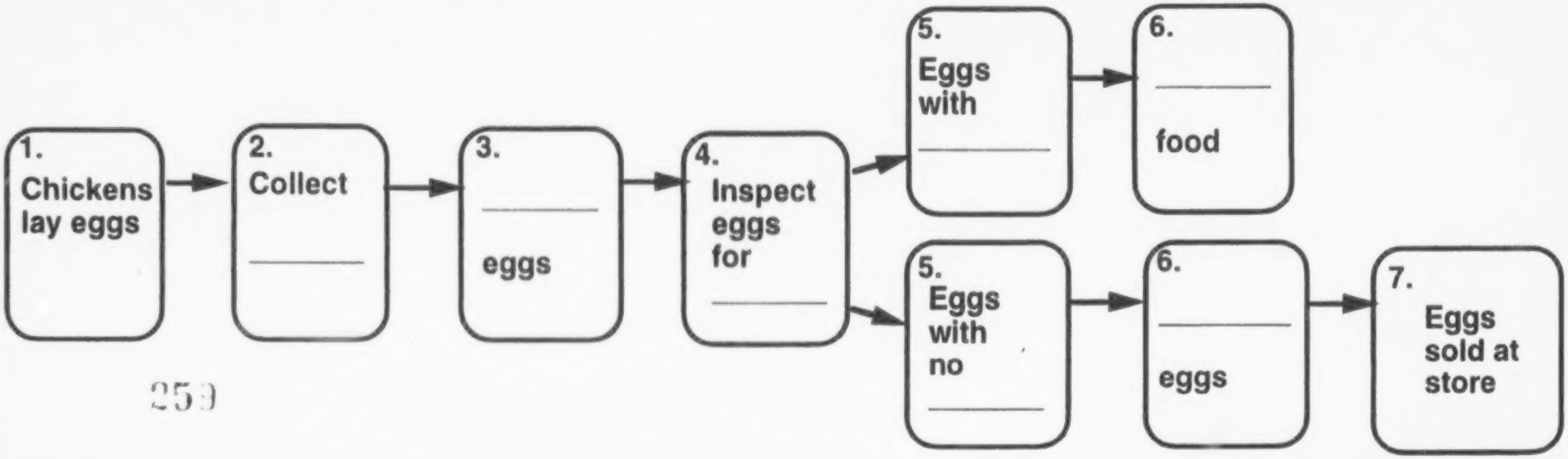
Where Does It Come From?

Name ______________________________ Date ______________________________

You have just gone to the store with your family. You bought tomato sauce and eggs, among other things. Where did these foods really come from? In the blanks below, trace the steps the tomatoes and eggs took to get from farm to food.


1. Grow ________ plants
2. ________ tomatoes
3. ________ tomatoes
4. ________ tomatoes
5. Crush tomatoes and make paste and ________
6. ________ sauce
7. Put sauce in ________
8. Tomato sauce sold at store


1. Chickens lay eggs
2. Collect ________
3. ________ eggs
4. Inspect eggs for ________
5. Eggs with ________
6. ________ food
5. Eggs with no ________
6. ________ eggs
7. Eggs sold at store

GRUBBING FOR GRAINS

Lesson 14

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Language Arts/Science
Instructional Time: 40 minutes/part (2 parts)
Student Vocabulary: ingredients, grubbing, enriched, bran, grains (wheat, corn, rice, barley, oats, rye)

NUTRITION OVERVIEW

Grubbing for grains may sound messy but it isn't. Students will not sift through grains, but they will sift through information on product food labels to identify the grain used in the production of the food item.

OBJECTIVES

The student will utilize the ingredient list on food labels to determine whether a product should be in the base of the pyramid (i.e. the Bread, Cereal, Rice and Pasta group).

The student will read a food label and match the first ingredient to a grain.

The student will infer that there is a wide variety of food products in the Bread, Cereal, Rice and Pasta group of the Food Guide Pyramid.

MATERIALS

Each student brings to class an empty cereal box
Empty food packages of bread, rice and pasta (one per student)*
Food ads (flyers) from grocery store

(Optional)
Food Guide Pyramid poster (to obtain see Resource List) or Pyramid Model (made in Lesson 12)
Samples of grains (available at a health food store or school food service)
Actual servings of food to illustrate portions (e.g. 1 cup of spaghetti noodles, 1/2 cup rice, 1 ounce dry cereal, etc.) or life-size punch-out food photographs available from your local Dairy Council (to obtain see Resource List).

* **Note**: Empty food packages can be brought in by the students, other teachers and/or you. However, to have all of the six grains represented you may need to purchase some-

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thing with rye and barley. Most likely your students will bring in wheat, rice, oats, or corn products.

INFORMATION FOR TEACHERS

Grubbing is searching for or investigating. In this lesson the students will be grubbing for the names of the grain listed on food labels.

- The name of the Bread, Cereal, Rice and Pasta food group implies variety since four types of grains products are named in the title.

- A grain is the seed or fruit of cereal grass. Six common grains that we eat are barley, corn, oats, rye, rice, and wheat.

- At least half of our total daily calories should come from carbohydrates, with emphasis on the complex carbohydrates, starch and fiber. Bread, cereal, rice, and pasta provide mostly complex carbohydrates for energy along with iron, zinc, and B vitamins.

- Grains are naturally low in fat, high in fiber, and appear to be helpful in reducing our risk of developing coronary heart disease and cancer. The Food and Drug Administration (FDA) recognizes this relationship and permits companies that produce foods that meet strict criteria to place a health claim on the food label. A sample health claim is "Low-fat diets rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer, a disease associated with many factors."

- A food product with the above health claim on its label must provide at least 10% (2.5 grams) of the daily value for dietary fiber without fortification. In addition, the Nutrition Labeling and Education Act specifies that foods bearing health claims must not contain any nutrient or food substance in an amount that increases the risk of a disease or health condition. Therefore, this same food product must also contain 20% or less of the daily value of fat, saturated fat, cholesterol and sodium. These are the substances the FDA has identified as risk nutrients.

- Most Americans consume between 10 and 15 grams of fiber per day. The RDI (recommended daily intake) for adults is 25 - 35 grams per day. To help meet the RDI for fiber, it is good to choose several servings from foods made from 100% whole grains. Other good sources of fiber include vegetables, fruits and dry beans (lentils, navy beans, kidney beans etc.) Age plus 5 is the fiber intake recommendation for children ages 3 - 18.

- Foods in the Bread, Cereal, Rice and Pasta food group that are made with little fat or sugar include: loaf breads, English muffins, rice, and pasta (macaroni, spaghetti noodles, etc.). Other foods in this group may contain more fat and sugar, such as doughnuts, cookies, cake, pastries, toaster pastries, some breakfast cereals, etc.

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STEPS TO FOLLOW

Part A

1. Review the Food Guide Pyramid. Point out that proportionally, the Bread, Cereal, Rice and Pasta group is the largest food group segment. This means we should eat more servings from this food group than any of the others (6 - 11 servings per day). Explain that this really is not a lot to eat. For example, one slice of bread is a serving, so if you eat a sandwich for lunch, that is two servings; a bagel at breakfast counts as two; and a cup of spaghetti noodles counts as two. **(Optional)** Illustrate actual portion sizes using real food or food photographs.

2. Direct the students' attention to the cereal boxes. Ask what all of these cereals have in common. (They are all made from grains.)

3. Provide each child with one food product label of either bread, rice, or pasta. Tell the students that these foods also have something in common. One way we can determine what is common among all these foods is by reading the list of ingredients on the food label.

4. Ask a student to define "ingredient." (An ingredient is something that goes into a mixture or, in this case, something that goes into a food.)

5. Explain that the list of ingredients on a food product names all of the things put into a mixture to make the final food. The first ingredient on the label is the ingredient of which there is the most by weight in the product.

6. Return to the students' cereal boxes. Direct the students to find the grain listed first in each cereal. (Sugar might be listed before the first grain.) Make a list of grains on the board.

7. Now focus the students' attention on the bread, rice or pasta packages. Direct students to find the grain listed first on each package. Have students share their findings and add any new grains to the list on the board.

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8. Refer to the list of grains on the board and ask which words repeatedly appear as a first ingredient. The final list may contain these six grains: barley, corn, oats, rice, rye and wheat. Other words like enriched, whole grain and bran may occur; however, these words are used to describe the grain. (Define enriched as the addition of nutrients lost in food processing; define bran as the partly ground husk of a grain.)

9. Instruct the students to write the list of grains down on paper. Explain that they are going to be "Grain Grubbers" people who search around for something. Direct them to take the list of grains home to search for these grains in food products in their home. Instruct the students to use the first or second ingredient listed on the food label as their guide to finding grains.

Part B

1. Students report to the class the different grains found at home.

2. Graph the class homework results by naming the number of products/items containing each of the grains at home. Invite students to verbally summarize the most frequently and least frequently found grains in food products in their homes. Have each student place the graph in his/her Pyramid Power folder.

3. Reinforce that the ingredient list can be used to determine in which food group a particular food belongs. The rule of thumb is to locate the predominant ingredient which is always first on the list. However, occasionally the second ingredient must be used to determine the food group. Grain products (corn flour, wheat flour, oats, barley, rye, rice, etc.) indicate the Bread, Cereal, Rice, and Pasta group.

4. Remind students that they should be "Grain Grubbers" and eat 6 - 11 servings daily from the Bread, Cereal, Rice and Pasta group. (The specific recommendation for children is nine servings.)

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5. **(Optional)** Create a sample menu on the board illustrating how students could get 9 servings from the Bread, Cereal, Rice and Pasta group through three meals and one or two snacks in one day. If desired, use the school breakfast and lunch menu as a starting point. Remember that a whole sandwich using 2 slices of bread counts as two servings. The same is true for hamburger and hotdog buns.

EXTENSIONS

Bulletin Board Idea

Display some of the food packages (or punch-out food photographs obtained through your local Dairy Council) used in this lesson and label the correct serving size on the board. Title this board "What counts as a serving." Common sizes are: 1 slice of bread = 1 serving; 1 hamburger or hot dog bun = 2 servings; one English muffin or bagel = 2 servings; 1/2 cup pasta = 1 serving and 1 ounce of cereal or about 1 cup = 1 serving.

Careers

Baker
Farmer
Truck Driver

Class Projects

Conduct a bake sale as a school fund raiser. Promote whole grains by using whole grain flour to make breads. This is a great opportunity for students to try whole grains. If desired, offer free samples to promote sales. For an additional .25 include the recipe (see recipe at end of lesson).

Food Service Cooperation

- Pancakes, waffles, muffins, doughnuts, pastries, pie crusts, and cookies are all part of this food group because the predominant ingredient is flour. However, they have more added fat and added sugar than other bread products. Invite your Food Service Director to visit your class and explain how the fat and sugar content of foods in this food group can change based on the preparation. Share information about the role of fat and sugar in these products, and why they are added. Point out that these foods provide vitamins and minerals like other breads plus extra calories from the added fat and sugar. Refer to the key on the Food Guide Pyramid poster which defines the symbols for naturally occurring/added fats and added sugars. Show students these symbols are pictured in the food group Bread, Cereal, Rice and Pasta because some foods in this group are made with fat and sugar. Help the students make a list of foods that have added fat and sugar. Tell the students it is acceptable to eat these foods, but to eat them sparingly.

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Further Investigations

Language Arts (See Resource List for descriptions.)

- Using Bread, Bread, Bread as a springboard, have the students create a class book called Pasta, Pasta, Pasta, or Cereal, Cereal, Cereal or Rice, Rice, Rice. Each student will contribute a picture and a short phrase describing the picture or pasta/cereal. For more of a challenge, set the story line first, using rhyme and descriptive words. Have the students illustrate the story line. You can make a class book or have each student add their own story to their *Pyramid Power* folder.

- Using the index in the book Bread, Bread, Bread, direct students to find the names for different breads (i.e. roll, baguette, pita, pizza, French, pretzel, tortillas, and challah). List the different bread names and use the dictionary to find the description of the bread product. Use the pronunciation key of the dictionary to say each word out loud.

- Invite a baker to class (or take a field trip to a local bakery). Ask him/her to discuss the processing of grains, flour and the making of dough. The baker might also explain measuring, kneading, rising, punching, shaping, and baking. If possible, arrange for students to taste samples.

ALLERGY CAUTION!

- Write a class book called "Everybody Cooks ________." Fill in the blank with either spaghetti, macaroni, oatmeal, bread, or pizza. Have the students contribute their favorite way to eat that particular food. These books would make a nice gift to send home to the student's family or add the single story to the *Pyramid Power* folder.

Math

- Instruct students to complete the *Fiber in Bread* worksheet. They will need to use the Nutrition Facts panel and ingredient list on three empty bread bags. Students will compare breads whose first ingredient is whole grain flour vs. enriched flour. Breads made from whole grain flour almost always contain more fiber per slice than breads made with enriched flour. The difference in fiber may seem insignificant at first, but evaluating it over the course of a week (or month or year) is impressive.

Note: You may need to assist students with label reading. As you can see from the sample labels on the next page, the serving size can be listed as one slice or two slices. Also, there may be two figures for fiber content, reflecting fiber for two slices of bread and one slice of bread.

Students need three bread labels for this activity. At least one of the three bread must read whole grain flour as the first ingredient.

Nutrition Facts

Serving Size: 2 slices (41g)
Servings Per Container: 11

Calories 80
Calories from Fat 10
Calories per slice 40
Fat Calories from Fat 5

Amount/serving	% DV* 2 slices	% DV* 1 slice		% DV* 2 slices	% DV* 1 slice
Total Fat 1.5g, 0.5g	2 %	1 %	**Total Carbohydrate** 18g, 9g	6 %	3 %
Saturated Fat 0g, 0g	0 %	0 %	Dietary Fiber 1g, 0g	4 %	0 %
Cholesterol 0mg, 0mg	0 %	0 %	Sugars 1g, 1g		
Sodium 135mg, 65 mg	6 %	3 %	**Protein** 3g, 2g		
Vitamin A	0 %	0 %	Vitamin C	0 %	0 %
Calcium	4 %	2 %	Iron	6 %	4 %
Thiamin	10 %	6 %	Riboflavin	6 %	2 %
Niacin	6 %	4 %			

INGREDIENTS: ENRICHED FLOUR, FLOUR, MALTED BARLEY FLOUR, NIACIN REDUCED IRON, THIAMIN MONONITRATE RIBOFLAVIN, WATER, BLEACH OAT HULL FIBER, VITAL WHEAT GLUTEN, HIGH FRUCTOSE CORN SYRUP, YEAST, POTATO FLOUR. CONTAINS 2% OR LESS OF EACH OF THE FOLLOWING: HONEY, SALT SOYBEAN AND/OR CANOLA OIL, AMMONIUM SULFATE, CALCIUM SULFATE, ENZYME ACTIVE SOY FLOUR, ETHOXYLATED MONOGLYCERIDES, MONOGLYCERIDES, SODIUM STEAROYL LACTYLATE, CALCIUM PROPIONATE (A PERSERVATIVE), SESAME SEEDS, IF APPARENT.

Nutrition Facts

Serving Size: 1 slices (36g)
Servings Per Container: 19

Calories 80
Calories from Fat 15

Amount /serving	% DV*	**Amount /serving**	% DV*
Total Fat 2g	3 %	**Total Carbohydrate** 15g	5 %
Saturated Fat 0g	0 %	Dietary Fiber 2g	8 %
Cholesterol 0mg	0 %	Sugars 2g	
Sodium 170mg	7 %	**Protein** 4g	

Vitamin A 0% • Vitamin C 0 % • Calcium 2 % • Iron 10 %
Thiamine 10 % • Riboflavin 6 % • Niacin 10 %

INGREDIENTS: STONE GROUND WHOLE WHEAT FLOUR, HIGH FRUCTOSE CORN SYRUP, WHEAT GLUTEN, SOYBEAN OIL, CONTAINS 2 % OR LESS OF THE FOLLOWING: YEAST, HONEY, SALT, DOUGH CONDITIONERS (SODIUM STEAROYL LACTYLATE), VINEGAR, CALCIUM PROPIONATE (A PRESERVATIVE), CALCIUM SULFATE.

Science

- Purchase samples of whole grains at a health food store. Show the students what grains look like before they are processed into flour. Illustrate the making of flour by using a mortar and pestle and having the students grind oats or cracked wheat into flour. Next, make bread using the freshly ground wheat flour and some previously ground flour purchased from the store. (The students won't be able to grind enough flour for an entire loaf of bread.) (See recipes at end of lesson.)

ALLERGY CAUTION!

Social Studies

- Inform the class the United States produces enough grain for its own country and many others. Write these major grain producing states and their top grains on the board:

    North Dakota - barley
    Iowa - corn
    South Dakota
    Arkansas - rice
    Georgia - rye
    Kansas - wheat

  Choose student volunteers to locate each of these states on the map and tape a symbol to them representing the major grain. For example, tape an ear of corn to the state of Iowa. Choose a student to identify the state he/she lives in and discuss your state's proximity to these other states.

- Inform students the midwest is nicknamed the "Breadbasket of the U.S." Ask if they think that term is appropriate and why. (Possible answers include: bread is made from grain, and grain producing states are near each other.)

- Look again at the labels on the food packages used in Part A. Help students locate on the bottom of the nutrition panel where the food item was prepared for packaging. Is it the same state in which the grain may have been grown in? (i.e. if the food product is corn meal, was it packaged in Iowa or another state?) Discuss why grains might be shipped to other states for processing.

- Read Bread, Bread, Bread by Ann Morris. Use the index of the book and a world map to locate the countries on the map that are pictured in the story.

Invite the Nurse

The American Cancer Society has information on the importance of fiber in the diet. The three food groups at the bottom of the pyramid are the foundation of the diet and the three main contributors of fiber. Invite the nurse to share fiber information from the American Cancer Society directed to children.

I Think I Can, I Knew I Could

Challenge your students to try to eat at least one 100% whole grain product by the end of the week. Did they like the food? Could this food become something they would like to eat often? (They may need to ask the person who does the food shopping for the family to put 100% whole grain on the grocery list and offer product suggestions such as cold cereal or bread.)

Taking It Home

- With a family member have your students read the list of ingredients on the bread the family typically buys. Look for the word "whole grain."
- Write a one day menu that includes 9 servings from the Bread, Cereal, Rice and Pasta group.

Taste Test

- Make cornbread as a class demonstration. Ask the students to describe what they expect cornbread to be like based on the name, specifically the color and texture they expect. Then compare their preliminary ideas about cornbread with the finished product.

ALLERGY CAUTION!

- Plan a taste test comparing white bread to 100% whole grain bread. Ask the children to describe the differences in taste, looks, and texture. If your students are familiar with whole grain bread and you want to introduce something different, taste breads made with oats and/or rye.

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Resources (see Resource List for description)
Bread, Bread, Bread by Ann Morris
Everybody Cooks Rice by Norah Dooley
More Spaghetti I Say by Rita Golden Gelman
Pasta Factory by Hana Machotka
"Teaching With Rice the Fun Way" USA Rice Council

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WONDERFUL WHEAT QUICK BREAD

Ingredients:

- 2 1/2 cups whole wheat flour
- 1 teaspoon baking soda
- 1/2 teaspoon salt
- 1 teaspoon baking powder
- 1/2 teaspoon cinnamon
- 1/2 cup honey
- 1/4 cup vegetable oil
- 1 1/2 cups buttermilk
- 1/2 tablespoon grated orange peel

Directions:

1. Mix ingredients together in the order they are listed. Beat well.
2. Spoon dough into greased 9 x 5 inch loaf pan.
3. Let dough stand for 20 minutes.
4. Bake at 375 degrees (F) for 45 to 60 minutes or until toothpick inserted halfway between center and edge comes out clean.
5. Remove bread from pan to cool. Serves 12.

BEAUTIFUL BANANA BREAD

Ingredients:

- 1 1/2 cups whole wheat flour
- 1 cup mashed bananas (about 3 medium)
- 1 teaspoon baking soda
- 1/4 teaspoon baking powder
- 1 cup sugar
- 1/4 cup vegetable oil
- 1/2 teaspoon salt
- 2 eggs

Directions:

1. Heat oven to 350 degrees (F). Grease bottom only of loaf pan, 9 x 5 x 3. Beat all ingredients in large bowl on low speed 30 seconds. Beat on medium speed 45 seconds, scraping bowl frequently.
2. Pour into pan.
3. Bake 50 to 60 minutes or until toothpick inserted halfway between center and edge comes out clean. Cool 10 minutes before removing from pan. Cool completely before slicing. Serves 12.

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FIBER IN BREAD WORKSHEET

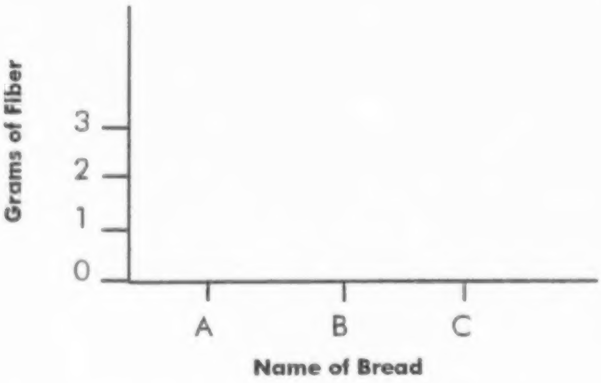
Name: ______________________

Using three bread labels, answer the following questions:

1. Complete the information about each type of bread:

	Name of Bread	**First Ingredient**	**Grams of Fiber in 1 Slice**
A.	____________	____________	____________
B.	____________	____________	____________
C.	____________	____________	____________

2. Make a bar graph that shows the differences in fiber content of the three types of bread.



3. Which bread (or breads) has the most fiber?

4. Which bread (or breads) has the least fiber?

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FIBER IN BREAD WORKSHEET (PAGE 2)

5. Which bread would have more fiber? (circle one)

Bread made with whole wheat flour

Bread made with enriched flour

6. How much fiber is in one slice of bread made with whole wheat flour? ________
How much fiber is in one slice of bread made with enriched flour? __________

a. If you eat 2 slices of whole wheat flour bread, how many grams of fiber will you get in one day?

b. If you eat 2 slices of enriched flour bread how many grams of fiber will you get in one day?

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BE ADVENTUROUS!

Lesson 15

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Language Arts
Instructional Time: 30 minutes/part (2 parts)
Student Vocabulary: vegetables

NUTRITION OVERVIEW

Children typically like to eat fruits more than vegetables. However, by discovering the wide variety of vegetables and different preparation methods, children may increase their vegetable consumption.

OBJECTIVES

The student will generate words to describe a vegetable and incorporate the descriptors into a story.

The student will compile a list of preparation suggestions for vegetables and share it with their parents/guardians.

MATERIALS

list of foods in the Vegetable group (appendix B)
hat, salad bowl, or produce shopping bag
cookbooks
dictionary
Sample Letter to Write Home (at end of lesson)

INFORMATION FOR TEACHERS

- In general, children like fruits, so it's not difficult to get children to eat fruits. On the other hand, many children like very few vegetables.
- Whether a vegetable is liked or disliked may be due to the way it is prepared. Children generally dislike vegetables that look wrinkled or mushy and that have a strong smell.

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- Children usually prefer vegetables that are crunchy or juicy.
- Children usually prefer vegetables with dips, sauces, dressings or cheese.
- Mixed dishes can be a good way to get kids to eat more vegetables. Examples include soups, stews, vegetable pizza, stir-fry etc.
- Children like the fun of peeling and cleaning vegetables and popping them in their mouths; the fact that vegetables can help build strong bodies and are low in fat has little appeal. Long term health benefits that children may find appealing are that eating vegetables contributes to good looks, healthy eyes and teeth, a strong body, and long life.

Reference:
Increasing Fruit and Vegetable Consumption, Baranowski, et al., Journal of Nutrition Education, Vol. 25, No. 3, May/June 1993.

STEPS TO FOLLOW

Part A

1. Using the list of vegetables (appendix B) write the names of the vegetables on slips of paper and place the slips of paper in a hat (or salad bowl or shopping bag). Invite each student in turn to draw one slip from the hat.

2. Instruct the students to list the known characteristics of that vegetable, such as color, part of the plant we eat, texture, taste, how it is most often prepared. Students may do this based on personal experience or may use dictionaries or cookbooks to help them list the characteristics of the vegetable. Also students should ask three people, either students or people outside the classroom, for words they would use to describe that vegetable. Students should add those words to the list of vegetable characteristics.

3. When the students have created a list of characteristics, ask them to write a story titled "The Day the Principal Brought ________ to School." You may change the title the Mayor, School Secretary, Custodian or Teacher. They fill in the blank with the name of their vegetable and a one word descriptor such as "Squishy Tomato." Each of the characteristics they listed in step two should appear in the story.

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4. Have a tasting party featuring the vegetables included in the childrens' stories. Invite the person they chose for their story. Students may share their stories by reading them aloud.

ALLERGY CAUTION!

Part B

1. Remind the children of the recommendation to eat three to five vegetables a day. Ask the students how many vegetables they think they typically eat each day. Compile a list of the vegetables included in the childrens' stories in Part A to emphasize the wide variety of vegetables available.

ask

2. Review the basic meals we eat each day. Question the students if they eat a vegetable at each meal. Ask how we could eat a vegetable at breakfast (by drinking tomato or vegetable juice). How could we eat more at lunch and/or dinner? Propose the idea that vegetables can be part of snacks. If the students eat one vegetable at lunch and one at dinner they only need to include one more at snack time or breakfast to reach the minimum recommendation of three. Encourage the students to recall the suggestions in the "5 A Day" videotape (from lesson 2 in K-1 unit) of ways to incorporate vegetables into meals and snacks.

ask

The videotape "5 A Day" is included with this curriculum. It is a short 5 minute tape with a catchy tune sung by children about ways to enjoy vegetables and fruits. See lesson 2 for information on the 5 A Day- For Better Health! campaign.

3. Give the students the opportunity to share with others their favorite vegetable and how they like it prepared.

4. Drawing on student preferences regarding preparation, compile a list of ideas about eating vegetables and have the children rewrite these ideas into a friendly letter to (parents/guardians, other relative, fairy-tale character, etc.). See *Sample Letter to Write Home.*

   Here are some ideas that may help you get started. The ideas need to come from your students to make the greatest impact:

   - Let the student help in the cleaning and preparation.
   - Make sure vegetables don't get overcooked. (Mushy vegetables are less appealing to most children.)
   - Crunchy is often most appealing - crunchy carrots, celery, cauliflower, broccoli, etc.
   - Dips can add pleasure to eating vegetables.
   - Peanut butter is a favorite on celery.

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- Look for vegetables on the menus in restaurants and fast food establishments - order them - or try the salad bar.
- Try vegetable soups.

In this letter, the students can also write about a vegetable they would like to try and why.

EXTENSIONS

Act It Out

Let the students role play a situation in which they are:

- asking their parents to buy more vegetables for snacks and dinnertime.
- suggesting ways to prepare the vegetables the way they like them and suggesting other dips or sauces to eat with vegetables;
- having the choice between candy or a vegetable snack and what process they go through to make a decision of which to eat;
- walking through the produce department of the store and shopping for vegetables, what would they say, what foods would they put into the cart;
- standing in line and reading the menu board at a fast food restaurant and looking for vegetables (salads or toppings on a sandwich).

Bulletin Board Ideas

- Design the board to look like a shopping list. Ask the students to write in their favorite vegetable and then also the other ingredients necessary if they like to eat that vegetable with something else. Note that students should be encouraged to bring in recipes from home and list the ingredients. Students can then use this bulletin board shopping list as a way to get ideas for the "Act It Out" extensions.
- Write "Be Adventurous, Try New Vegetables" on the board. Have the students cut out pictures of vegetables from magazines and newspapers and mount them onto the bulletin board.

Careers

Writer
Story book illustrator
Greenhouse gardener
Farmer

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Class Project
Design a brochure on ideas for making vegetables fun to eat.

Food Service Cooperation
Based on the information discussed in this lesson, invite the students to write a letter to the Food Service Director about ways they would like to see vegetables prepared for school lunches.

I Think I Can, I Knew I Could

- Challenge each child to try to eat one more vegetable the next day. Discuss how they can accomplish this. Afterwards ask if it was hard or easy. Let those who were successful explain why and give pointers on how the other students can do the same thing, too.

- Challenge each child to try a new vegetable this week and report back to the class.

Taking It Home
Take a family vote to find out which vegetable(s) and method(s) of preparation are most enjoyed by your family. Share the information with the class. Bring back to school recipes and tips to share with the others.

Taste Test
Have a taste test of some of the ways the class suggested to eat vegetables. Try new vegetables (such as jicama, sweet potatoes, parsnips, pea pods) and offer them with low fat dips, peanut butter, etc..

ALLERGY CAUTION!

Assign each student a vegetable to bring to class. Ask parents to send the specified amount of vegetable clean and ready to cook. Make vegetable soup in a crockpot. Let each child put in their own vegetable and take turns stirring. If you have a large class, some children can be assigned to bring crackers, beverage, etc.

Resources (See Resource List for description)
Eating the Alphabet: Fruits and Vegetables from A to Z by Lois Ehlert
Stone Soup by John Stewig

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Sample Letter to Write Home

Dear Family,

I have been learning about vegetables and why they are important. Did you know that we should try to eat at least three servings each day? A serving is about 1 cup of salad or 1/2 cup of cooked vegetables.

Today in class, I thought up ways that our family can eat more vegetables. These are some of my ideas:

1. I like vegetables raw, especially when I can dip them in my favorite salad dressing.
2. It would be fun to go to the grocery store each week and pick out a new vegetable to try.
3. Vegetable soup is one of my favorites. Did you know you can add all kinds of different vegetables to soup?
4. I like celery with peanut butter on top for a snack.
5. I would even like to serve vegetables with a low fat dip at a party.

There is a vegetable I have heard about and would like to try. It is called jicama. It is a white, crunchy, starchy vegetable. It is a tuberous root from a tropical American vine. I think it would be interesting to try. Maybe we could try it with other vegetables and dips.

I think it is a good idea for our family to eat more vegetables. Do you agree? Maybe we can think of some more fun ways to fix and eat vegetables.

Love,

____

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IS IT FRUIT?

Lesson 16

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Language Arts/Mathematics
Instructional Time: 40 minutes
Student Vocabulary: flavored, gummy, ingredient, high fructose corn syrup, sorbitol

NUTRITION OVERVIEW

Some manufacturers recognize the appeal of the word "fruit" to sell a product. Through closer inspection of the product through the label information, the students will determine whether the item should be categorized as a fruit.

OBJECTIVES

The student will read product descriptors and ingredients on a food label to determine the classification of the food on the Food Guide Pyramid.

The student will identify key words on a food label to determine the origin of the food or the predominant ingredient.

MATERIALS

8 food labels with "fruit" or a fruit name used in the title or descriptor*
6 envelopes
6 (3x5") index cards per group of students
Is it Fruit? worksheet (at the end of this lesson)

*** Note:** Examples are products such as: fruit punches, dried fruit candies, fruit cookies, fruit-shaped and fruit-flavored cereals, fruit chewing gums, fruit-flavored popsicles, fruit cocktail, fruit cups, or strawberry milkshake mixes. Six labels will be used for the class activity. The other two labels, you will need for introducing the lesson. Steps 2 and 4 stipulate one package of a fruit-flavored candy or breakfast cereal and one package of a fruit gummy candy.

INFORMATION FOR TEACHERS

- Fruits provide the body with fiber, vitamins A and C, water and energy. The energy

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comes from carbohydrates in the form of sugars. Sugar is the simplest form of energy the body uses.

- Fruits come in various forms such as fresh, juiced, frozen, canned, or dried.
- Fruits that have been processed can have added sugar. For example, fruits may be canned or frozen in syrup or sweetened with fruit juices. (Note the inverted triangle on the Food Guide Pyramid Poster which represents added sugar.)
- Only 100% fruit juice counts as fruit. Punches, ades, and most fruit "drinks" contain only a little juice and lots of added sugar. There are a number of ingredients that indicate sugar: sucrose, fructose, high fructose corn syrup, corn syrup, etc.
- Food manufacturers may advertise a food as fruit-shaped or fruit-flavored. These foods are usually cereals, candies, cookies, or soft drinks. They are not considered fruit because they do not have the nutrients of real fruits.
- Jams, jellies, and preserves made from fruit are not considered part of the fruit group. These sweets are placed in the tip of the pyramid.

STEPS TO FOLLOW

1. Distribute the *Is it Fruit?* worksheet. Review with students the ingredient words that mean sugar. Give them a few minutes to complete the bottom portion. (Note: the ingredient lists are not complete. They only contain the first five or so ingredients which highlights the information the students need.)

2. Show the students a pack of fruit-flavored candy or breakfast cereal. Ask if they think these foods are fruits. (No, even though they have the word fruit in the title or as a descriptor on the food package, the foods are candy and cereal. This is determined by reading the list of ingredients. The first ingredient listed is the main ingredient by weight. A food is usually placed into a food group based on the first, sometimes second ingredient.) Ask in which food groups these products belong (the tip of the pyramid and the Bread, Cereal, Rice, and Pasta group, respectively).

ask

3. Explain that reading the food label is one way to distinguish real fruit from foods that are fruit-colored, fruit-flavored or have the name of a fruit in the title but

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are not actually fruit. Descriptor words like "gummy," "flavored," "shaped," "sweetened with fruit juice" help indicate whether a food is really fruit or not. Point out that some food labels might list fruit juice or fruit concentrate but still have sugar as the first ingredient. These products are not the same as eating a piece of fruit.

4. Show a food package which is not a fruit but has fruit on the label, such as a fruit gummy candy. Have a student point to the word "fruit "on the label. Read the ingredient information on the label, looking for fruit and sugar. Have the class vote as to whether this food is or is not a fruit. Count the votes. Explain how to tell if a food is fruit:
   - context clues on the package (words like gummy, flavored, shaped, etc.).
   - the list of ingredients (look for the name of the fruit; if sugar is the first ingredient, the food is high in sugar and not a fruit).
   - thinking where this food is sold at the store (is it sold in the produce department, canned food aisle or candy aisle).

5. Place the six food packages with the word fruit in the title (or as a descriptor) around the room at different stations. Tape one envelope underneath each food product.

6. Explain to students they will now look at some foods with "fruit "printed on the label. In groups, they will decide if the food is a fruit or not. Then they will write "yes" or "no" on the index card and place it in the envelope. Organize the students into groups of three. Give index cards to each group. Allow each group to go to stations, look at the food packages, and decide as a group if the food is a fruit. Only one group can be at one product at a time. While groups are at the stations the other students should be instructed to read silently or draw pictures of favorite fruits, etc.

7. When all the groups are finished, display the index cards in a bar graph on the floor, wall or on a poster. To make the graph, place the food products in a line. Have six students (one for each product) volunteer to remove the

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cards from the envelopes and line up the "yes" cards together and the "no" cards together in front of each product. This bar graph illustrates the number of student groups that decided "yes" or "no" for each product.

8. Discuss the results. Summarize the usefulness of graphing information.

9. Conclude that some food manufacturers recognize the health benefits of fruit and therefore use the word "fruit" to sell a product. Some foods are fruit-colored, fruit-flavored or named after a fruit but this does not mean that the product has the same health benefits of fruit. These products can be part of a healthy diet. However, fruits (fresh, frozen, canned, dried, or juiced) are the only ones to rely on as a benefit to health.

EXTENSIONS

Bulletin Board Idea
Ask the students to bring food labels from home that have the word fruit on them. Divide the bulletin board in half. Label one side "fruit," the other "don't be fooled." Or, put the word fruit with a circle and line through it to indicate "not fruit." Place the food labels in one of the two columns.

Careers
Advertising Consultant or Artist
Food Marketing Specialist

Class Project
Assign the students to watch Saturday morning television with parental approval. Divide the students among the different viewing stations. Ask them to count the number of commercials that advertise a food as "fruit-flavored" or "fruit-shaped"during one hour. Have the students report their findings.

Food Service Cooperation
Many fruit purveyors and associations have information and worksheets designed to promote fruit consumption among elementary school aged children. Ask the Food Service Director to help you locate some new resources for your classroom.

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Further Investigation
Language Arts

Design an advertisement for fresh fruits. Use adjectives to make the fruits sound mouth watering and inviting. Compile a class list of the adjectives used to describe fruits. Ask the students to rewrite the list onto a piece of paper to put into the Pyramid Power folder. Title the page, "Mouth Watering Words to Describe Fruits!"

Invite the Nurse

Many fruits are a good source of vitamin C. Vitamin C plays a role in wound healing and cancer prevention. Ask the nurse to talk about the nutrient benefits of vitamin C and eating fruits. Have the nurse point out that many foods are fortified with vitamin C. While this is good, there are still many other nutrients found in fruits that are usually not present in the fortified food. These vitamin C fortified foods are not a substitute for fruits.

I Think I Can, I Knew I Could

Have the students keep record of the number of fruits they eat for one day. If they don't eat at least two, have them set a goal to try to eat one more the next day. If they ate two have them see how many days they are able to follow this pattern. Praise the students for making fruits a part of their food choice habits.

Taking It Home

Ask the students to go home and look for items in their kitchen that have the word "fruit" and then decide with someone they live with if this is really fruit.

Taste Test

Try some tropical fruits or fruits most of your students have never tasted.

ALLERGY CAUTION!

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IS IT FRUIT?

Name: ______________________________ Date: ______________________________

There are many ingredient words on food labels that mean sugar. Below is a list of names:

brown sugar	high fructose corn syrup
corn syrup	honey
corn sweetener	malt syrup
dextrose	molasses
fructose	sorbitol
glucose	sugar

Circle all the sugar names in each of the food ingredient labels listed below:

CANDY

Ingredients: peanuts, corn syrup, sugar, milk, butter, salt, flour, egg whites, flavors

CEREAL

Ingredients: rice, sugar, brown sugar, salt, honey, malt syrup

FRUIT GUMMY CANDY

Ingredients: corn syrup, sugar, gelatin, pear concentrate, sorbitol, citric acid...

FRUIT-FLAVORED CEREAL

Ingredients: flavored cereal corn, wheat and oat flour, sugar...

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MILK MYSTERIES
Lesson 17

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Science
Instructional Time: 40 minutes
Student Vocabulary: cream, yogurt, calcium, fat

NUTRITION OVERVIEW

Many people place all dairy products in the Milk, Yogurt, and Cheese food group. However, some of these products belong in the tip of the pyramid because they are primarily made from cream, and/or they do not have a high enough calcium content.

OBJECTIVES

The student will identify a variety of dairy products in the Food Guide Pyramid.

The student will conclude that the information on a dairy product food label determines where it is placed on the Food Guide Pyramid (either in the Milk, Yogurt, and Cheese group or in the tip of the pyramid).

The student will conduct an experiment to determine the difference between two dairy products based on their initial ingredient.

MATERIALS

2 clean baby food jars with lids* (label one jar "milk" and one "cream")
milk (enough to fill 3/4 of a baby food jar)
heavy whipping cream (enough to fill 3/4 of a baby food jar)
empty food packages of:
    milk
    liquid whipping cream
    cream cheese
    sour cream
    yogurt
    cottage cheese
    chip dip
    cheese
    butter
    ice cream
    pudding
    ice milk
    frozen yogurt
    crackers or bread to spread butter on and eat - be sure jars are clean!

* **Note:** If you do this as a class you need only two jars. If you do this in small groups you need two jars per group.

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INFORMATION FOR TEACHERS

- Milk, yogurt, and cheese are rich in protein, calcium and riboflavin. No other food groups offer the same quantity of nutrients per serving.

- Milk products are an important part of children and adult diets. The Food Guide Pyramid advises us to eat 2 to 3 servings from the Milk, Yogurt, and Cheese group each day. Nutritionists recommend consuming low fat milk products in order to keep down the amount of fat in our diets.

- Lowfat milk products include skim and 1% milk, nonfat and low fat yogurt, part skim or low fat cheeses, ice milk, and low fat frozen yogurt. The protein, calcium, and phosphorus content of low fat dairy products is the same as in the high fat products. The only trade-off is fat. Encourage students to choose skim or 1% milk and nonfat and low fat yogurt.

- Fat is essential in the diet for a healthy body. However, the typical American diet provides more fat than is necessary.

- As a rule, foods with cream listed as the first ingredient are placed in the Fat, Oils, and Sweets group. Two exceptions are cream cheese and ice cream. The first ingredient in cream cheese is milk, the second ingredient is cream; however, the calcium content is not high enough to put cream cheese into the Milk, Yogurt and Cheese group. Thus, cream cheese is placed in the tip of the pyramid. Ice cream products vary. Some list cream, others list milk as the first ingredient. In either case, the ice cream has the protein and calcium that matches the nutrient profile of the milk. Thus, ice cream is placed in the Milk, Yogurt, and Cheese group. However, ice cream has added fat and sugar.

- Typically, a clue to categorizing foods is the word "cream" in the title. Sour cream, cream cheese, and whipping cream are all placed in the tip of the Food Guide Pyramid.

- Butter cannot be made from milk because the fat content is not high enough in milk.

- Butter comes from cream. Cream is mostly fat. It does not contain the protein or calcium of milk. Therefore, cream and butter are in the tip of the Food Guide Pyramid and not in the Milk, Yogurt, and Cheese group.

STEPS TO FOLLOW

This lesson can be simple or made more complex. If you choose a basic approach, have your students make butter and read a few books from the recommended reading list. Be sure your students recognize butter and cream are in the tip of the Food Guide Pyramid and do not have the nutrient benefits of other milk products like yogurt and cheese.

1. Display the packages of foods listed in the "materials" section. Ask what these foods have in common. (Most of them come from cows and are made from milk or by-products of milk.) Students may say they are all part of the Milk, Yogurt and Cheese food group, but inform them they may change their minds by the end of this lesson.

2. Draw a chart on the chalkboard. Write the name of the food product in the first column and the first ingredient of the product in the second column. Write in the first food (for example, yogurt). Ask the students to look on the label at the list of ingredients to find the first ingredient (milk). List a second food (such as sour cream) and do the same thing. If the first ingredient is cream, write cream on the board. Continue with other products. For example:

Name of Product	First Ingredient
yogurt	milk
sour cream	cream

3. Review the first ingredient list on the chalkboard. Ask the students to draw a conclusion from the charts (the first ingredient is always milk or cream).

4. Ask what the difference is between milk and cream. Tell the students they are going to conduct an experiment to determine one difference.

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5. Distribute the baby food jars, one filled with and labeled milk and the other cream. Demonstrate vigorously shaking the jars. Pass the jars to the students. Each student will shake vigorously for one or two minutes (count to 120) and continue rotating among the students until the cream turns to a solid (butter).

6. The solid butter is safe to eat. Ask for a volunteer to taste it and guess what is now in the jar. Provide crackers or bread for the students to taste the butter.

ALLERGY CAUTION!

7. After the tasting, ask the students why they think the cream turned to a solid and the milk stayed liquid. (Cream turned into butter because of the fat content but the milk didn't have the same amount of fat so it stayed liquid.)

ask

8. Look at the ingredient list for butter. Point out that the first ingredient is cream. Explain that cream is skimmed off fresh whole milk. It does not have the nutrients needed for growth such as protein and calcium. Therefore, butter and other foods made from cream do not have the nutrient benefits of milk.

9. Go back to the list of foods on the chalkboard and highlight those that were made with cream. Tell the students these foods are lower in calcium than milk and are not in the Milk, Yogurt and Cheese group. Instead they are in the tip of the pyramid because they are mostly fat. Fats are to be used sparingly. They should not be eliminated from the diet, but used sparingly. Review the foods that should be eaten sparingly (butter, cream, cream cheese, sour cream, half and half) and display the packages.

10. **(Optional)** Poll children to see how many of them use butter or margarine (or don't know) at home. Ask how margarine is different from butter. Margarine is processed from vegetable oil and butter is made from cream. Explain that margarine is also a fat and is thus classified in the tip of the pyramid. You may want to compare the labels of butter and margarine, pointing out that they are very similar in fat and calorie content. What is different? (Margarine has no cholesterol and is lower in saturated fat.)

ask

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EXTENSIONS

Bulletin Board Idea

Place a picture of a dairy cow in the middle of the board and surround it with product labels from foods in the Milk, Yogurt, and Cheese group.

Careers

Dairy Farmer

Class Project

Go to a dairy farm for a field trip. Be sure to have the guide discuss cream, homogenization and why butter made from cream does not have the health benefit of foods in the Milk, Yogurt and Cheese group.

Food Service Cooperation

If your school participates in the school breakfast and lunch program, and if your students eat and drink the foods offered, they will get two servings from this food group at school. However, each day food services throw out large amounts of wasted milk. Schedule a day when the Food Service Director will let your class measure the amount of milk thrown out. Some schools empty cartons before they are put in the trash. If your school does this, save the waste and measure it in gallons. If not, see if someone can collect milk waste so that it can be measured. Report to the school the amount of milk wasted. Suggest how the amount of waste can be reduced.

Your Food Service Director may have or is willing to obtain information on milk, yogurt and cheese from the Dairy Council, Milk Foundation, Milk Industry Foundation, National Cheese Institute, National Dairy Board, National Dairy Council, or Pennsylvania Dairy Promotion Program. Talk with your Food Service Director for a display of the appropriate information in the school cafeteria.

Further Investigations
Health

- Sugar is sometimes added to milk products. Chocolate milk, yogurt, ice cream, and puddings have sugar added. Look for the words that indicate added sugar in these milk products. They may be corn syrup, chocolate, fruit preserves, sugar, etc. These foods are okay to eat sometimes. In fact, it is better for a student to drink chocolate milk than no milk at all. There are substantial amounts of vitamins and minerals in chocolate milk, thus, it does not belong in the tip of the pyramid.

Language Arts

- Write the word "cream" on the chalk board and ask the students to brainstorm words that they typically relate to cream. Ask the students to try to figure out what the word "cream" means by context clues on a food package. Next have the

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student look the word up in the dictionary and ask a parent or another adult to define the word. Ask the student to create a mental picture of cream using physical sensations, emotions or symbols. Instruct them to identify the word cream, spell it correctly, and say the word. Give students sentences using the word "cream" and determine different meanings (i.e. " I would like cream in my coffee", "We are going to cream that team", "Cream the butter"). Ask the students to add their own sentences.
Note: This would be an appropriate place to do the first "Taste Test" extension listed below.

Science

- Go to a local dairy and get milk with cream on the top to show how the two separate. This illustrates the scientific property that fat and water do not mix. Explain how the fat (cream) sits on top of the water (milk).

Invite the Nurse

The nurse could talk to your class about bone growth throughout life. Ask the nurse to reinforce the concept that calcium is found in the Milk, Yogurt, and Cheese food group. If the nurse has a model of a skeleton, ask that this be brought to class to aid in the lesson.

I Think I Can, I Knew I Could

Ask each child to keep track for one day how many cups of milk they drink and how much, if any, yogurt or cheese they eat. If they eat more than the three servings you need not discourage the intake.

Taste Test

ALLERGY CAUTION!

- Ask the students to bring in empty containers of ice cream from home and compare them by tallying the first ingredient. Count how many were made with cream as the first ingredient and how many were made with milk. Do a blind taste test. Sample ice creams (and ice milk) with cream, whole milk and skim milk as the first ingredients. Ask the students to describe how they are different. Describe the word "creamy" - cream may make the ice cream creamier, but it also means more fat. Conclude that it is okay to eat ice cream made with cream sometimes but if you eat ice cream often a better choice would be ice milk or frozen yogurt. This is one way to use fat (cream) sparingly.

- Discover yogurt as a substitute for sour cream. Make two dips, one with yogurt and one with sour cream. Let students taste and compare. Also mention that there are fat free and light sour cream products available.

- Discover yogurt cheese as a substitute for cream cheese. Put plain yogurt into a cheesecloth and hang over a bowl. Let it sit in the refrigerator and drain at least 24 hours. Ask your students to predict what will happen. (The water or whey will drip out.) The product left will be a cheese similar to cream cheese. Do another

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comparison taste test. Explain that yogurt cheese has very little fat but does have the protein and calcium needed for growth. The cream cheese does not have these nutrient benefits. Also mention that there are fat free and light cream cheese products available.

Resources (See Resource List for descriptions)
Make Mine Milk by the Dairy Council
Milk From Cow to Carton by Aliki
The Milk Makers by Gail Gibbons

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MY PET FISH DRIVES EVERYONE NUTS

Lesson 18

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Language Arts
Instructional Time: 40 minutes
Student Vocabulary: poultry, dry beans

NUTRITION OVERVIEW

The Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group has a diverse number of food origins. Many children (and adults) forget all of the foods that go into this group. Using a mnemonic sentence can help all of us remember them.

OBJECTIVES

The student will memorize the members of a food group using a mnemonic sentence.

The students will create their own mnemonic sentence for the members of the same food group.

The student will create a story about this food group and present it either in writing or verbally into a tape recorder.

MATERIALS

paper
pencil

Optional: audio tape recorder

INFORMATION FOR TEACHERS

- Foods in the Meat, Poultry, Fish, Egg, Dry Beans and Nuts group come from both plants and animals. They are grouped together because they have similar nutrient protein composition.
- Meat, poultry, fish, eggs, and nuts have fat. Dry beans are low in fat and also contain fiber.

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- Dry beans is a term that many children (and adults) do not understand. Dry beans are not necessarily "dry." They can be purchased in a can or in a bag. In a can, the beans have been soaked and cooked. In a bag, they are dry and must be rinsed and soaked in water before they can be cooked and eaten.
- Some examples of dry beans are black-eyed peas, split peas, lentils, kidney, navy, pinto, red, white, garbanzo, and great northern beans.
- It is important to eat a variety of foods within this food group in order to balance our protein from higher fat animal products with lower fat plant products.
- Children ages 7 - 10 need 28 grams of protein each day. We have a higher requirement for carbohydrate than for protein.

STEPS TO FOLLOW

1. Teach the children the mnemonic for the food group.

Meat	**M** =	My
Poultry	**P** =	Pet
Fish	**F** =	Fish
Dry Beans	**D** =	Drives
Eggs	**E** =	Everyone
Nuts	**N** =	Nuts

2. Now instruct the students to create their own mnemonic sentence for the Meat, Poultry, Fish, Dry beans, Eggs, and Nuts group. Have the students share these with the class.
3. Assign a creative writing story to be completed either individually or as a class. For the title, the students can either use "My Pet Fish Drives Everyone Nuts" or their own mnemonic sentence. In the story, the students must include specific types of Meats, Poultry, Fish, Dry Beans, Eggs, and Nuts. Encourage creativity and illustrating in the story line.
4. If the students are not yet writing, have them create the story using an audio tape recorder.
5. Share the stories with the class.

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EXTENSIONS

Bulletin Board Idea

Illustrate the stories and place them on the board. Write out the mnemonic sentence on the board, underlining or offsetting the first letter by a different color, as follows:
Meat, **P**oultry, **F**ish, **D**ry beans, **E**ggs, and **N**uts
My **P**et **F**ish **D**rives **E**veryone **N**uts

Careers

Butchers
Cattle Ranchers
Egg Hatchery Workers
Fishermen
Farmers (bean and nut farmers)
Hog Farmers
Meat Inspectors
Poultry Farmers

Class Project

This food group is the only major food group in the Food Guide Pyramid that is a mix of foods from both plant and animal origins. Encourage your students to explore the similarities and differences between the origins of the foods in this group. For example: both animals and plants need water; animals make noises, but plants do not; animals need shots, but plants do not; someone needs to tend to an animal everyday, but plants do not usually need such attention, etc.

Food Service Cooperation

Ask your Food Service Director for promotional information sent from some of the food associations and purveyors representing foods from this group. For example, the Pennsylvania Beef Council, Iowa Pork Producers Association, Lamb Education Center, National Meat and Livestock Board, American Seafood Institute, Institute of American Poultry, Beans of the West, California Dry Bean Advisory Board and the Egg Board are just a few of the associations with educational information to share with schools.

Further Investigations

Science

- It is easy to understand protein in the animal flesh we eat but protein in beans, seeds and nuts may be difficult. Ask your students to try to find out why these foods are not categorized as vegetables or grains. Beans, seeds, and nuts are unique from other vegetables and grains because they have more protein. Beans, seeds, and nuts trap nitrogen. It is the nitrogen that is unique to protein, making it different from carbohydrate and fat. As a demonstration, bring in some samples of beans so the students

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can look closely at the bean. There is a small nodule on every bean. At this nodule the students can see where the nitrogen enters the bean, seed, or nut to become a food source of protein.

- Beans are really seeds. Each seed contains a young plant called an embryo. The embryo needs nutrients to keep it alive. The seed stores nutrients for its own growth. The seed coat on the outside is easily removed. Soak dry beans overnight and see how many seed coats come off. The embryo is all that remains. Split the embryo into two halves. Each half is a thick leaf. This leaf stores the embryo's food. Attached to one leaf is the rest of the embryo - you split it off from both when you opened up the bean. Look for very tiny leaves and a root tip. Embryos usually do not begin to grow while seeds are still in their fruits, but if you shell a lot of pea pods, you may find a few seeds with roots growing out of them.
- See attached experiment on growing your own sprouts in the classroom. This experiment may be best conducted as class. Students can take turns rinsing seeds.

Language Arts
Write letters to some of these associations asking for nutrition information.

Meat
Iowa Pork Producers Association
Box 7
Clive, IA 50053

National Livestock and Meat Board
444 N. Michigan Ave.
Chicago, IL 60611

National Pork Producers Council
911 Western Ave.
P.O. Box 10383
Des Moines, IA 50306

Pennsylvania Beef Council
4714 Orchard St.
Harrisburg, PA 17109

Lamb Education Center
200 Clayton St.
Denver, CO 80206

Poultry
Institute of American Poultry
67 E. Madison
Chicago, IL 60602

Fish
Halibut Assoc. of North America
407 Maritime Bldg.
Seattle, WA 98104

National Fisheries Institute
Promotions Divisions
111 East Wacker Drive Suite 600
Chicago, IL 60601

National Seafood Educators
Nutrition Division
P.O. Box 60006
Richmond Beach, WA 98160

North Atlantic Seafood Assn
1220 Huron Road
Cleveland, OH 44115

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Eggs

American Egg Board
Egg Nutrition Center
2301 M. Street N.W.
Suite 405
Washington, DC 20037

Dry Beans

American Soybean Association
777 Craig Road
St. Louis, MO 63141

Beans of the West
300 Elliott Ave. West #260
Seattle, WA 98119

California Dry Bean Advisory Board
531-D North Alta Ave.
Dinuba, CA 93618

Dry Pea and Lentil Industries
Stateline Office
Moscow, Idaho 83843

Nuts

California Almond Growers Exchange
PO Box 1768
1802 C. Street
Sacramento, CA 95808

Georgia Agricultural Commodity Commission for Peanuts
P.O. Box 967
Tifton, GA 31793

National Peanut Council
1000 16th St., N. W.
Suite 506
Washington, D.C. 20036

Peanut Advisory Board
1950 North Park Place, Suite 525
Atlanta, GA 30339

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Invite the Nurse

Ask the nurse to talk to the students about the role of protein in the body. Although protein has a big job to build and maintain all body cells, the recommended needs are small in comparison to our energy needs. Be sure the nurse points out that the foods that provide protein are recommended in fewer servings than the foods that provide carbohydrates for energy (Bread, Cereal, Rice, Pasta, Vegetables, and Fruits).

Taking It Home

Ask the students to survey members of their family as to what food group a peanut goes in and what food group a kidney bean goes into. Tally the family responses in class and graph the information. Ask the students to transfer the class graph to paper. On this paper have them also write a sentence stating that beans and nuts help meet our nutrient needs the same way meat and chicken do. Have them take this paper home to the family.

Taste Test

ALLERGY CAUTION!

Hummus is a delicious puree from the Middle East that is quick and easy to make. It is best if it is prepared the day prior to the taste test, chilled and then served with crackers, pita bread or bagels.

Hummus is a food that fits in the Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group because it is made from garbanzo beans (also known as chick peas). It may be unfamiliar to many children, but encourage your students to try hummus as an example of a meatless dish.

Recipe for Hummus:

1 15oz can of garbanzo beans (also known as chick peas)
2 cloves of garlic, minced
2-3 TBSP tahini*
2 TBSP lemon juice

*Tahini is a nut butter made from sesame seeds. It can be purchased in some supermarkets, specialty food stores, or Middle Eastern grocery stores. Like peanut butter, it must be mixed well before using because the oil usually separates and rises to the top.

Drain garbanzo beans. Place all products ingredients in a food processor or blender and puree to a thick paste. If necessary, add one teaspoon of water at a time so that the ingredients have enough moisture to sufficiently blend. Store in a tightly covered container.

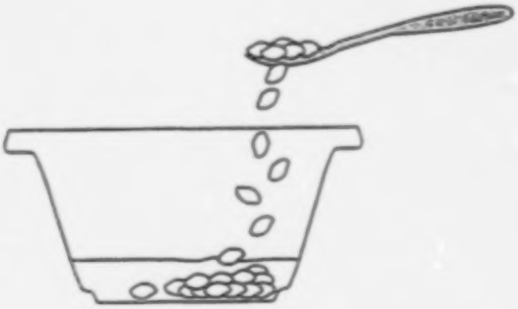
GROWING YOUR OWN SPROUTS

When seeds sprout, they are rich in many nutrients, especially protein. You can easily grow your own sprouts at home.

You will need:
An empty glass jar
A piece of muslin or cheesecloth
A rubber band
Some seeds (alfalfa seeds, chickpeas, mung beans, or soy beans)

1. Soak 2 to 3 tablespoons of seeds in warm water overnight.
2. Rinse the seeds in cold water and drain them.
3. Put the seeds in the jar and cover the top with muslin or cheesecloth. Fasten the cloth onto the jar with a rubber band.
4. Store in a warm, dark place. Rinse in cold water 2 or 3 times a day until the the sprouts are long enough to eat. This takes 3 to 5 days.
5. Rinse, drain, and eat.

1



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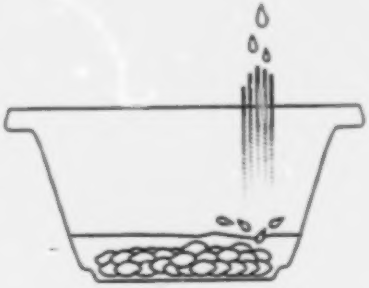

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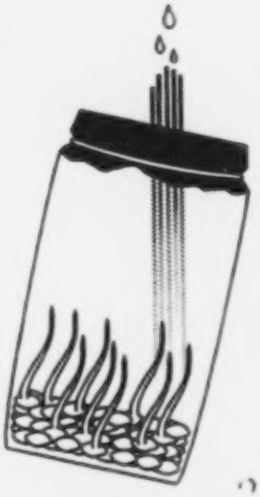

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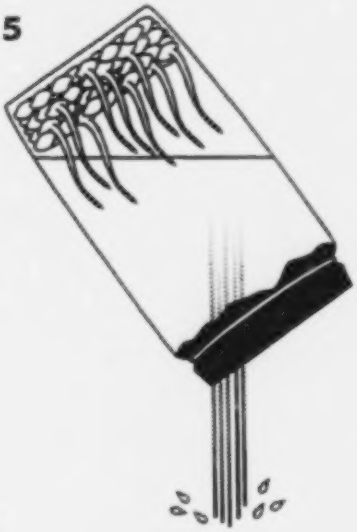

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THIRST QUENCHERS

Lesson 19

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Health
Instructional Time: 25 minutes
Student Vocabulary: fluid, thirst, high fructose corn syrup

NUTRITION OVERVIEW

There are a variety of beverage choices in the Food Guide Pyramid. Because of the differing nutrient contents of these drinks, some belong in the major food groups, whereas others belong in the tip of the pyramid.

OBJECTIVES

The student will identify beverage choices that can contribute to health.

The student will select lowfat milk, vegetable and fruit juices rather than soda, punch drinks and ades.

MATERIALS

empty beverage containers (*) such as:
- vegetable juice
- 100% fruit juice
- fruit punch, ades, fruit "drinks"
- cola or other soda flavors
- milk (white and chocolate)
- sports drinks
- seltzer (with and without sugars/flavorings)
- * Try to match the class favorites

graph paper
Goal Keeper! worksheet (at end of lesson)

INFORMATION FOR TEACHERS

- Only 100% fruit juice is considered a serving from the Fruit group. The Nutrition Labeling and Education Act of 1990, requires juice manufacturer's to put the percent of total juice on the product label.

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- Fruit drinks (that are not 100% juice), punches, ades, and carbonated beverages are placed in the tip of the Food Guide Pyramid, not in the fruit group.
- Beverages such as tomato, vegetable, and carrot juice are in the vegetable group.
- Water is an essential nutrient. Water is not in a food group because it does not provide energy the way food does.
- All bodily functions depend on water. Every cell in the body holds some water, which is essential for growth. To use nutrients for energy, water is needed to break the larger components into smaller components. Studies to determine limiting factors in the work output of people suggest that a lack of water has a much more profound effect on work production than a lack of food. This finding is especially significant for athletes.

STEPS TO FOLLOW

1. Ask who has ever been thirsty. Why were you thirsty? What do you do when you get thirsty?

ask

2. Explain that thirst means your body needs water (fluid). Water is essential for life.
3. Provide the empty beverage containers. Ask students to look at the list of ingredients. Call on different students to take turns reading aloud, the first three or four ingredients to the class. Based on the ingredients and their order, have him/her determine if the beverage belongs in a food group or the tip of the pyramid. If the choice is the Fruit group, verify this by instructing the student to find the percent of total fruit juice somewhere on the food label (it must state 100% fruit juice). **(Optional)** Make an outline of the Food Guide Pyramid on the floor using masking tape. Place the empty beverage containers in the proper group once it has been determined.

ask

High fructose corn syrup is a type of sugar commonly used in beverages. Students will need to know that this word means sugar. They'll also need help with the pronunciation. The worksheet at the end of lesson 16 may be helpful in familiarizing students with other ingredients that mean sugar.

4. Inform students that fruit juice, vegetable juice and milk, provide energy plus additional nutrients such as vitamins and minerals. Beverages not in a major food group, but from the tip of the pyramid, offer sugar for energy but little or no vitamins and minerals. Encourage students to get beverages from major food groups, then once the recommended number of servings are met, if desired, they can select beverages from the tip of the pyramid in moderation.

5. Remind students that plain cool water is also a good choice when looking for a thirst quencher. It has nothing added like flavors, colors or sweeteners. Water itself is a nutrient we cannot live without. It is not placed in the pyramid because it does not provide energy the way food does.

6. Point out to students that vending machines, fast food restaurants, and convenience stores can have vegetable juice, fruit juices, and milk available for purchase in cans, bottles, and cartons. Encourage students to look for these the next time they visit one of these establishments.

7. Challenge students to drink one fruit juice (100% juice) and one milk product per day (provided they normally tolerate these foods without difficulty). Students can write this challenge on the *Goal Keeper* worksheet and track their progress. Arrange a time for the students to report whether they were able to meet the challenge.

EXTENSIONS

Careers

Sports Nutritionist
Coach
Professional Athlete

Class Project

- Organize a contest where the students create a slogan to promote choosing drinks from the food groups of the Food Guide Pyramid. Students may wish to work in pairs. Place the slogans around the school and in the cafeteria. Some slogans that have worked are: "Be Smart, Drink Smart," "Drink for Good Health," and "Drink Healthy."

- Plan a class trip to a bottled water plant.

Further Investigations

Language Arts

- Write a story, " The Day Our School Drinking Fountain Sprayed Out ____________." Fill in the blank with beverages such as tomato juice, pineapple juice, or chocolate milk. The story can be written individually or as a class, where each student adds a sentence on to the story until everyone has had a chance to participate and the story is complete. Edit, illustrate and include the story in the Pyramid folder. Individual stories can be shared with the class.

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Mathematics

- Compare the percent real fruit juice in several different types of fruit drinks and beverages. Graph the information and draw conclusions as to which types of drinks offer the most fruit juice.

- Teach the concept 100%. If a drink is 100% juice it is all juice. On the other hand, if it is 10% juice then only 1/10 of it is juice. Collect the labels from several of the students' favorite beverages. Provide a picture of a glass with a line at the 10% or 1/10 designation. At the top of the glass write 100%. Have the students fill in the titles of the drinks at either the top with 100 % juice or at the bottom with 10%. Reinforce the idea that only drinks made from 100% fruit juice can be counted as a juice.

- 100% vitamin C is listed on many labels - simply state to the students that vitamin C is only one of the nutrients found in fruits. Food manufacturers add vitamin C and while this is good, there is still more to fruit besides this one nutrient (i.e. fiber, minerals, vitamin A, etc.). Therefore, even if a drink is 10% juice with 100% of the recommended daily intake of vitamin C, it is not the same as 100% fruit juice.

Science

This experiment illustrates the difference in diffusion time of different solutions (i.e., plain water vs. concentrated sugar water). Instruct the students to measure 12 ounces of plain water, into two identical containers. Add 9 teaspoons (measured) of granulated sugar to one of the containers and stir until thoroughly dissolved. Mention that most colas and other soft drinks contain about 9 teaspoons of sugar in 12 ounces. Next, compare the rate at which each liquid flows out a funnel lined with a number 4 paper coffee filter. Use a fresh filter for each solution and test one at a time. The students should use a stopwatch to time how many seconds it takes each solution to pass completely pass through the funnel. You may want to give them a guideline such as "stop timing when the last drops take four or more seconds to fall from the end of the funnel." Ask students what they can conclude from these results. They should find that the water with sugar took longer to soak through the paper and drain out the bottom of the filter than plain water (it takes about twice as long). The point may be made that in the body the diffusion time is also increased with concentrated solutions. During sports events, fluid needs to be quickly absorbed thus, water is generally best.

Taste Test

ALLERGY CAUTION!

Provide beverages for taste testing that are from a major food group (Fruit, Vegetable, and/or Milk, Yogurt and Cheese groups). Offer choices students may not be familiar with such as tomato juice, vegetable juice, cranberry juice, etc. If possible, allow them to pour their own 3/4 cup serving if they've selected a beverage from the Vegetable or Fruit Group.

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Name: ______________________________ **Date:** ____________________

GOAL KEEPER!

Write down your goals on the left side under "Goals." Mark an "X" in the boxes on the right side each day you reach that goal!

GOALS	M MONDAY	TU TUESDAY	W WEDNESDAY	TH THURSDAY	F FRIDAY
1					
2					
3					

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F.O.S.
FATS, OILS, SWEETS
FEW, OCCASIONALLY, SOMETIMES
Lesson 20

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Language Arts
Instructional Time: 30 minutes/part (two parts)
Student Vocabulary: fat, oil, sweet, sparingly

NUTRITION OVERVIEW

Fats, oils, and sweets may be ingredients in some of the foods we enjoy, but when those ingredients appear first by weight on a food label, we should consume the items sparingly. Students need to become comfortable applying the term "sparingly" to their own food choices.

OBJECTIVES

The student will use the dictionary to define words.

The students will list a number of foods categorized as Fats, Oils, and Sweets in the Food Guide Pyramid.

The student will apply the concept of sparingly to determine how much and how often to eat foods from the tip of the pyramid.

MATERIALS

dictionary
pencil and paper
sugar bag
oil bottle
shortening package
cola bottle
jelly jar
candy bar or candies
Fats, Oils, and Sweets list (in this lesson)

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INFORMATION FOR TEACHERS

- The tip of the Food Guide Pyramid is only for the foods that provide calories with little other nutrient benefit (i.e., vitamins and minerals).
- Foods that are often placed in the tip but do not belong there are: cookies, pies, cakes, doughnuts, pre-sweetened breakfast cereals, tortilla chips, French fries, fried vegetables, potato chips, ice cream, and fried meats. These foods contain added fat and/or sugar but are placed in their respective food groups with a fat or sugar symbol because they still provide a variety of nutrients important for good health. Foods in the food groups that have added fats and sugar should be eaten in moderation.
- To determine if a food belongs in the tip or a major food group, focus on the main ingredient. For example, potato chips come from potatoes. Although the potatoes have been processed and contain a significant amount of fat, the first ingredient (by weight) is still potatoes. Therefore, potato chips are placed in the Vegetable group. Margarine on the other hand, is made of 100% vegetable oil and belongs in the Fat, Oils and Sweets group.
- The tip of the Food Guide Pyramid contains foods that are recommended to be eaten sparingly. "Sparingly" is an inexact concept. There are no amounts given, which leaves the consumer to decide what "sparingly" means.

STEPS TO FOLLOW

Part A

1. Direct the students to look closely at the title of the foods found in the tip of the Food Guide Pyramid (Fats, Oils and Sweets). Provide the list of the Fats, Oils and Sweets for students to refer to. Draw a chart on the chalkboard that has three columns - one fat, one oil, one sweets. First define each word so the students can use the definition to help them put the food into the proper category. Ask students to look at the list and categorize foods as Fats, Oils, or Sweets.

ask

Fats:	a class of energy-rich foods solid mass that is greasy or oily
Oils:	liquid fat
Sweets:	sweet to the taste food with a high sugar content; sugar is usually the first ingredient.

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Fats

bacon
bacon bits
butter
cream
cream cheese
lard
margarine
mayonnaise
shortening
whipping cream

Oils

all vegetable oils
oils of nuts
salad dressings

Sweets

candy
caramel
chocolate
corn syrup
frosting
fruit drinks, ades, punches
fruit sorbet
fudge
gelatin desserts
honey
jam, jelly
marmalade
marshmallows
molasses
popsicles
sherbet
soft drinks
table sugar, syrups

2. Provide the product labels of foods in the tip of the Food Guide Pyramid. Ask students to look at the list of ingredients. If you want to take it a step further have the students look at the Nutrition Facts panel to see that these foods have essentially no other nutrients besides calories from fat or sugar (i.e. no protein, Vitamins A, C, iron or calcium).

3. Discuss with the students how we use these foods. Often they are not eaten alone but become ingredients mixed with other foods. Point out that the fat and sugar symbols are seen all over the Food Guide Pyramid because these ingredients are frequently added to foods in all the food groups. Foods in the food groups that have added fats and sugar should be eaten in moderation. While these foods still provide a variety of nutrients important for good health, they also provide extra calories without extra vitamins and minerals.

4. **(Optional)** Distribute to each student the Bread, Cereal, Rice and Pasta list (appendix B). Instruct students to draw a small circle next to foods they believe have added fat and inverted triangles next to foods with added sugar. Discuss. Ask if anyone put both?

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Part B

1. Direct the students to think about the word "sparingly." Help them define "sparingly." The word "sparingly" is an adverb, modifying a verb. Ask what verb "sparingly" modifies (to eat).

ask

2. Using the acronym F.O.S., how many words can students think of that begin with either an F, O, or S to describe how to eat these foods sparingly. Some examples follow:
   F - few
   O - occasionally, only a little
   S - sometimes, small amount, some, sparse, scanty

3. Review the "tip" foods written on the board. Ask the students to pick an ingredient or food in the tip of the pyramid that they like to eat and to write a sentence or two about how they would it eat sparingly. For example, instead of choosing cola to drink every day as a snack and at mealtime, choose colas only every other day, or just at snacks and not at meal time. Remind the students that each person makes food choices based on their own past experiences with food. So, how one student defines sparingly is different from others.

ask

EXTENSIONS

Bulletin Board Idea
Which foods go into the Fats, Oils, and Sweets category is often misunderstood. Many people put any foods with fat or sugar into the tip. Design a board with the message, "The Tip is High on Energy but Low on Nutrients." Place pictures or packages of the foods that belong in the tip on the board.

Careers
Dietitians
Physicians
Food Technologists

Food Service Cooperation
Many Food Service Directors have changed recipes for school lunch items so that they are serving less fat or sugar. Ask the director to share recipe changes so the students are aware of the efforts and the remaining good flavor and taste left in the foods served.

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Further Investigations
Language Arts

- Relate the concept sparingly to tasks (i.e. chores). Instruct students to draw three columns on a blank piece of paper. In one column, list activities he/she would like to do "sparingly." In another column, list "not sparingly" activities, these are activities the student enjoys. In the final column place the "not sure" activities. Invite students to share responses with the class.

Invite the Nurse

The concept of sparingly applies to many health issues. Invite the nurse to share with the class other ways to apply the sparingly message to health.

I Think I Can, I Knew I Could

Challenge the students to look at their use of one food in the tip of the Food Guide Pyramid to determine if they use it sparingly or may need to reduce its intake. For example, have each student pick a food like margarine or fruit punch and count how often they use it for several days. Then, let the students decide if they could be making other choices when they choose that food or perhaps they could take a smaller amount. Have each student set a goal to eat less of the food or eat it less often.

REACH FOR THE STARS!

Lesson 21

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Health/Mathematics
Instructional Time: 40 minutes (optional homework)
Student Vocabulary: variety, range, fewest, most, serving

NUTRITION OVERVIEW

The determination of food consumption is valuable when concerned about one's diet. Food records reveal important information regarding eating patterns and food consumption. It is important to determine how much of each food group is consumed in order to evaluate if nutrient needs have been met.

OBJECTIVES

The student will draw conclusions about the variety of food choices in his/her diet based on a record of foods eaten for one day.

The student will determine if he/she has eaten the minimum number of recommended servings for each food group of the each food group of the Food Guide Pyramid for one day based on a food record.

The student will draw conclusions about his/her food consumption patterns.

MATERIALS

school breakfast and lunch menus
paper
pencil, colored pens, crayons or markers
Reach for the Stars worksheet (at end of this lesson)
food group lists (appendix B)
The Pyramid Reference Sheet (at the end of this lesson)

INFORMATION FOR TEACHERS

- Foods are categorized into groups according to nutrient composition.
- Some foods in food groups offer more of one nutrient than another. For example, an

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apple is similar to an orange in energy (calories) but the apple has far less vitamin C than the orange. Therefore, we wouldn't want to just eat apples to meet the recommended servings of fruit. By eating a variety of fruits there is a greater chance of increasing the variety and amounts of various nutrients.

- The foods in the five major food groups provide nutrients. The foods in the tip of the Food Guide Pyramid provide mostly energy (calories) with few vitamins and minerals.

STEPS TO FOLLOW

The *Reach for the Stars* worksheet can be used in a variety of ways. Two ways are listed in the procedures that follow. We have left the directions off the student worksheets to give you flexibility to try our suggestions or come up with new uses. You will need to state the appropriate directions to your students.

The *Reach for the Stars* worksheet can be used to reinforce and let the students assess if they are:

- eating from all the food groups.
- eating a variety of foods within each food group.
- eating the minimum number of servings recommended for each food group.

Approach A

The following procedure is to teach that everyone should eat at least the minimum number of servings from each food group every day.

1. Direct your students to record everything they eat for one day. Alternatively, you can use the school breakfast and lunch menu for one day and complete the day with a "favorite" dinner and "favorite" snack the class creates. Ask each child to write the all the names of the foods for the day on paper or write the foods on the chalkboard for all the students to see.

ask

2. Students will have to decide in which food group each food belongs and what counts as a serving (the food group lists and *Pyramid Reference Sheet* may help students with this). When they know, they will color one star for that food in the appropriate food group.

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3. They will repeat this procedure for all the foods.

4. When all the foods are represented on the worksheets by colored stars, the students should evaluate their food intake. Explain that the stars represent the nutrients the body needs to grow. The foods in the five major food groups provide nutrients. The foods in the tip provide mostly energy (calories) with few vitamins and minerals. Therefore we are only looking at the foods we eat in the major food groups. Ask whether they consumed the minimum number of servings for each food group. If not, in which food group did they need more servings? (Note: the number inside the parenthesis is the specific number of servings recommended for this age group.)

Approach B

The following procedures are to be used to teach variety in choosing foods from all of the food groups as well as choosing a variety of foods within each food group.

1. Ask the students why the foods are in groups. The focus should be on the nutrients needed for the body to grow. Emphasize the concept that all the food groups work together, and one group is no more important than another.

2. Ask the students how they can determine if they are eating foods from all the food groups and eating different foods within each group. Conclude that keeping a record would be a good way to know what they have eaten.

3. Direct your students to record everything they eat for one day. Or you can use the school breakfast and lunch menu for one day and add a "favorite" dinner and snack the class creates. Ask each child to write the all the names of the foods for the day on paper or just write them on the chalkboard.

4. Distribute the *Reach for The Stars* worksheet.

5. Explain that the stars represent nutrients the body needs to grow. The foods in the five major food groups provide nutrients. The foods in the tip provide mostly energy (calories) with few nutrients. Therefore we are only looking at the foods we eat in the major food groups.

6. Develop a color key for the different foods. Explain that each star should be colored differently for each different food eaten, but if the same food is eaten twice, both stars should be colored the same. For example, every time milk is consumed the stars would be colored the same (blue), but when cheese is eaten the star would be a different color (red).

7. Ask students to count the number of different colors of stars, explaining that more colors of stars means more variety (You may want to have each student select one group to focus on). Explain that eating a few of the same foods each day is okay as long as other foods are eaten. Exception: For the milk group, it is okay to have three glasses of milk and no other sources. Explain to students that milk is the ideal combination of nutrients that group is striving to provide.

8. Lead a discussion on why variety is important. Ask for some suggestions of ways to get a variety of foods each day.

9. Look at the proportion of foods eaten from the groups. Is the proportion in line with the recommendation or is it light in the bottom and heavy at the top? Ask students what changes would need to be made and how those changes could be accomplished.

10. Instruct students to put the worksheet into the *Pyramid Power* folder.

EXTENSIONS

Bulletin Board Ideas

Put black paper on the background of the bulletin board. Write "Reach for the Stars" in a bright yellow or shiny silver aluminum foil. Put lots of stars in white or aluminum foil around on the board. You can quit there or you may choose to put names of the food groups on the stars or you can put the nutrient names - carbohydrate, protein, fat, vitamins, minerals, and water on the stars.

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Careers
Dietitian

Food Service Cooperation
Invite the Food Service Director to talk with the class about the menu planning process. Explain that if the students eat what is offered at breakfast and lunch then more than half of the nutrient recommendations should be met right here at school.

Invite the Nurse
The nurse can lead discussions of health behaviors and goal setting and making sure the goals we set for ourselves are realistic (The nurse may be able to suggest others to talk, i.e., team coaches). Setting ourselves up for success is the best way to accomplish a goal. Therefore, children should be striving for changes that they will be able to meet.

I Think I Can, I Knew I Could
Based on the outcome of the *Reach for the Stars* worksheets, your students may want to set some goals for change in eating habits. They may want to try to eat more foods in one particular group and fewer foods in another. They may want to eat a wider variety of foods within a certain food group. In any case, praise them for what they try and for recognizing that patterns can be changed. If desired, provide extra *Reach for the Stars* worksheets so students can track their progress.

Resources (See Resource List for description).
"Pyramid Power" produced by Lancaster County Cooperative Extension

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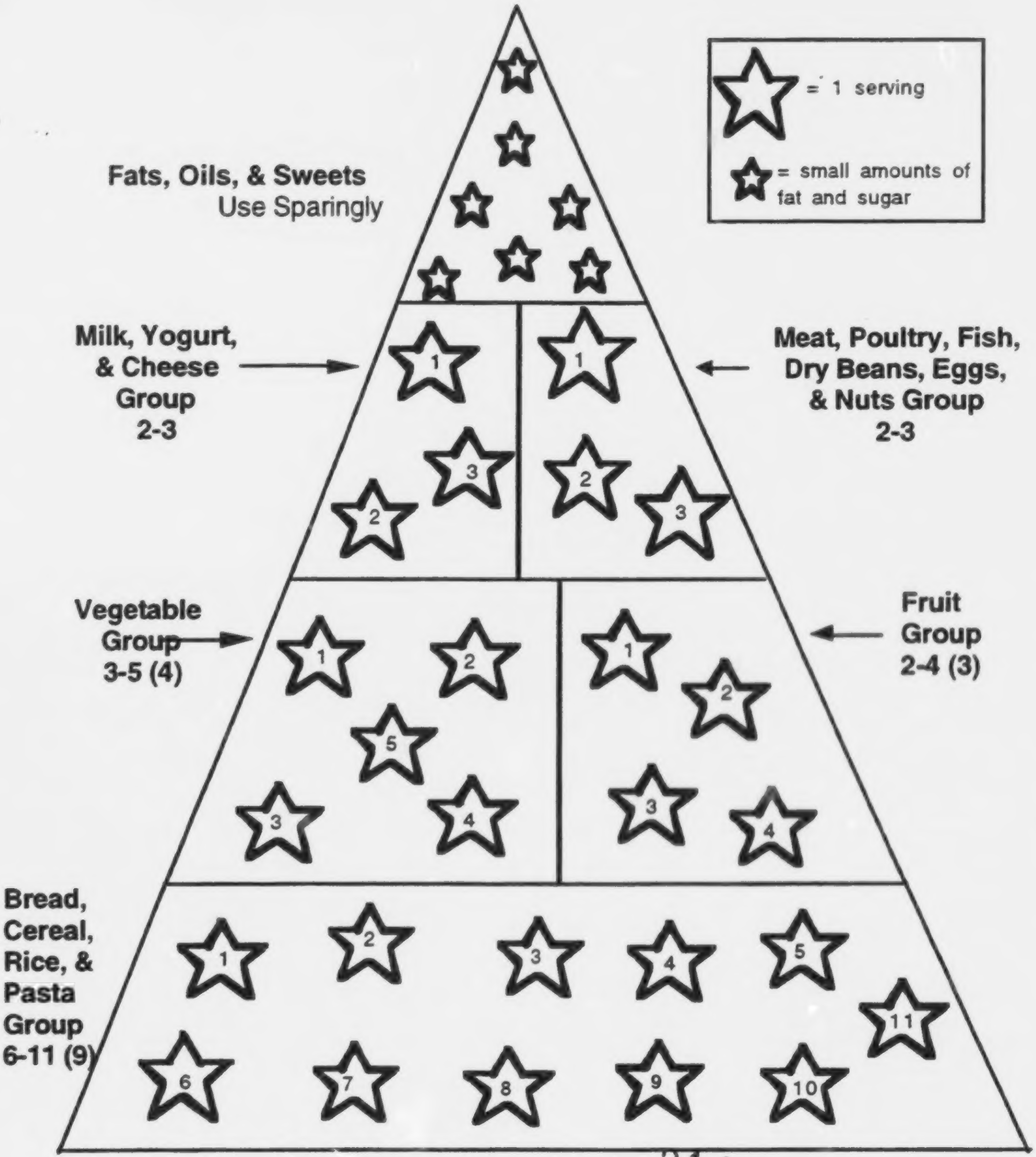
Name ______________________ Date __________

Reach for the Stars!


= 1 serving
= small amounts of fat and sugar
Fats, Oils, & Sweets
Use Sparingly
Milk, Yogurt, & Cheese Group
2-3
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3
Vegetable Group
3-5 (4)
Fruit Group
2-4 (3)
Bread, Cereal, Rice, & Pasta Group
6-11 (9)
1
2
3
4
5
6
7
8
9
10
11

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Name________________________ Date ________________________

PYRAMID REFERENCE SHEET

1 Serving Equals:

Bread, Cereal, Rice Pasta (6-11)	1 slice of bread half a hamburger or hot dog bun half a bagel or English muffin 1/2 cup of pasta, rice or cooked cereal 1 ounce of cereal
Vegetable (3-5)	1 cup of raw leafy vegetables 1/2 cup cooked or chopped vegetables 3/4 cup vegetable juice
Fruit (2-4)	1 medium apple, orange, or banana 1/2 cup chopped, cooked, or canned fruit 3/4 cup fruit juice
Meat, Poultry, Fish Dry Beans,Eggs, Nuts (2-3)	2-3 ounces of cooked lean meat, poultry or fish 1 cup cooked dry beans 2 eggs 4 tablespoons peanut butter
Milk, Yogurt, Cheese (2-3)	1 cup milk 1 cup yogurt 1 1/2 ounces of natural cheese 2 ounces of processed cheese

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FOOD GUIDE PYRAMID - SORTING MAT

Lesson 22

Grades 2 & 3 "Pyramid Power"
Curriculum Connection: Mathematics/Health
Instructional Time: 30 minutes (can be used in learning centers or as end of unit hands-on test)
Student Vocabulary: bread, cereal, pasta, fat, oil, sweets

NUTRITION OVERVIEW

To be able to plan for healthy eating, it is important to categorize food items. Determination and acknowledgement of serving sizes of these foods is equally important.

OBJECTIVES

The student will collaborate with classmates to classify foods by food group using a Food Guide Pyramid sorting mat and food items.

The student will correctly identify the measure of a serving size recommended for each food group using the Food Guide Pyramid sorting mat and pictures of measuring devices and serving sizes.

The student will classify foods by specific food groups.

The student will classify foods by serving sizes.

MATERIALS

Mural paper to make Food Guide Pyramid Sorting Mat (instructions included in lesson)
Manipulatives: These can be collected by the teacher, students, or both
    empty clean food packages
    fast food containers
    food coupons
    food advertisements
    grocery flyers
    Instructions for Using the Food Guide Pyramid Sorting Cards
    Food Guide Pyramid Sorting Cards for foods and servings (Appendix A)
    measuring cups (1 cup, 1/2 cup, 3/4 cup)

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INFORMATION FOR TEACHERS

It is necessary to understand serving sizes as a measure of food consumption. Servings sizes (found on every food label) vary between foods and food groups.

STEPS TO FOLLOW

Before you begin you'll need to make the sorting mats. You can make these mats yourself or have a cooperative lesson with the 4-6 grade students in which they make the mats for your class. You'll need to coordinate this with the appropriate teachers in the upper grades. This suggestion is given in the 4-6 grade section (Lesson 23 "peer help") of the curriculum. You will need one mat for each group of three to four students. Have the mats laminated.

Part A and Part B of this lesson are suggested uses for the sorting mat. The beauty of the mat is that you can do many different things based on your class needs and interests. Part A addresses food categorization and Part B addresses methods for measuring serving sizes. You may choose to do one or both parts. The sorting mat can be used as a testing tool to assess the students' knowledge of categorizing foods into the proper food groups.

Part A - Sorting by Food Groups

1. Divide the students into groups of 3 or 4. Give each group a set of the sorting cards. Have someone shuffle the deck and pass out the cards. Taking turns, each student places one card onto the correct food group on the sorting mat. The students may check each other for accuracy using the back-side of the sorting cards.

Teacher may choose to observe and check student's work rather than having students check each other.

2. Explain that the class will work together in groups sorting foods (you can use real food items or sorting cards) from a grocery bag and placing them onto a Food Guide Pyramid. Circulate among the students, helping when necessary. Keep the food items coded by color dots or labels so that the label will allow children to check their work.

Instruct students to choose one food item from the bag at a time and place it on the appropriate food group.

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3. Provide grocery store flyers. In groups have the students cut out the ads and place the foods into the proper food groups on the pyramid.

4. Play "Make A Day" - the students will make a day's worth of meals using the manipulatives. Let the students check each other to make sure they have included the correct number of recommended servings for the day. Use the *Serving Size Pyramid* handout as a way the students can check each other.

Part B - Recognizing Serving Sizes

1. Divide the students into groups of 3 or 4. Give each group a set of the measuring sorting cards. Have someone shuffle the deck and pass out the cards. Taking turns, each student places one card onto the correct food group on the sorting mat. The students take turns checking each other for accuracy.

2. Let the students use measuring cups to manipulate serving sizes with the corresponding groups. A 1/2 cup would be used for cooked cereal, rice, or pasta, chopped or cooked vegetables, and cooked or chopped raw fruits. A 3/4 cup would be used for fruit and vegetable juices. A one cup measure would be used for raw leafy vegetables, milk, yogurt, and cooked dry beans.
   Optional: Have the students make a day's worth of meals using all the manipulatives. Check to make sure they have included at least the minimum number of recommended servings.

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INSTRUCTIONS FOR USING THE FOOD GUIDE PYRAMID SORTING CARDS

The Food Guide Pyramid Sorting Cards are located in appendix A of this unit.

The Food Guide Pyramid sorting cards picture a variety of foods and illustrate the food group in which the food belongs according to the USDA's Food Guide Pyramid (the sorting cards are found in appendix A of this unit).

The Serving Size Measure sorting cards provides a visual example of the amount of a food that is considered one serving according to the USDA's Food Guide Pyramid.

These sorting cards can be used in learning centers or in other lessons of the curriculum as a visual reinforcement. The cards are two-sided. One side pictures the food or serving size. The other side highlights the food group in which that food is categorized.

To make the sorting cards, photocopy the pictures and the matching pyramid front to back. Copy as many sets as you need, one set per student or per groups of students.

The broken lines on the cards indicate where to cut but you'll need to trim them to make each set of cards uniform in size.

There are approximately 15 Bread, Cereal, Rice and Pasta cards; 24 Vegetable cards; 24 Fruit cards; 6 Milk, Yogurt, and Cheese cards; 13 Meat, Poultry, Fish, Dry Beans, Eggs and Nuts cards; 4 showing combination meals; and 4 cards representing foods from the Fats, Oils, and Sweets. There are 12 serving size cards. You may choose to use all the cards from each group or just some. You may make the selection based on the foods that are appropriate for your class.

The cards can be used in many ways. Coloring them adds to the aesthetic appeal. Laminating adds years to their usefulness. The cards may be used for sorting by food groups but also by plants or animal origins, color, shape, first letter of the alphabet, means of growth (vine, bush, tree, etc.) and many other ways. We encourage you to try other creative ways to use the sorting cards.

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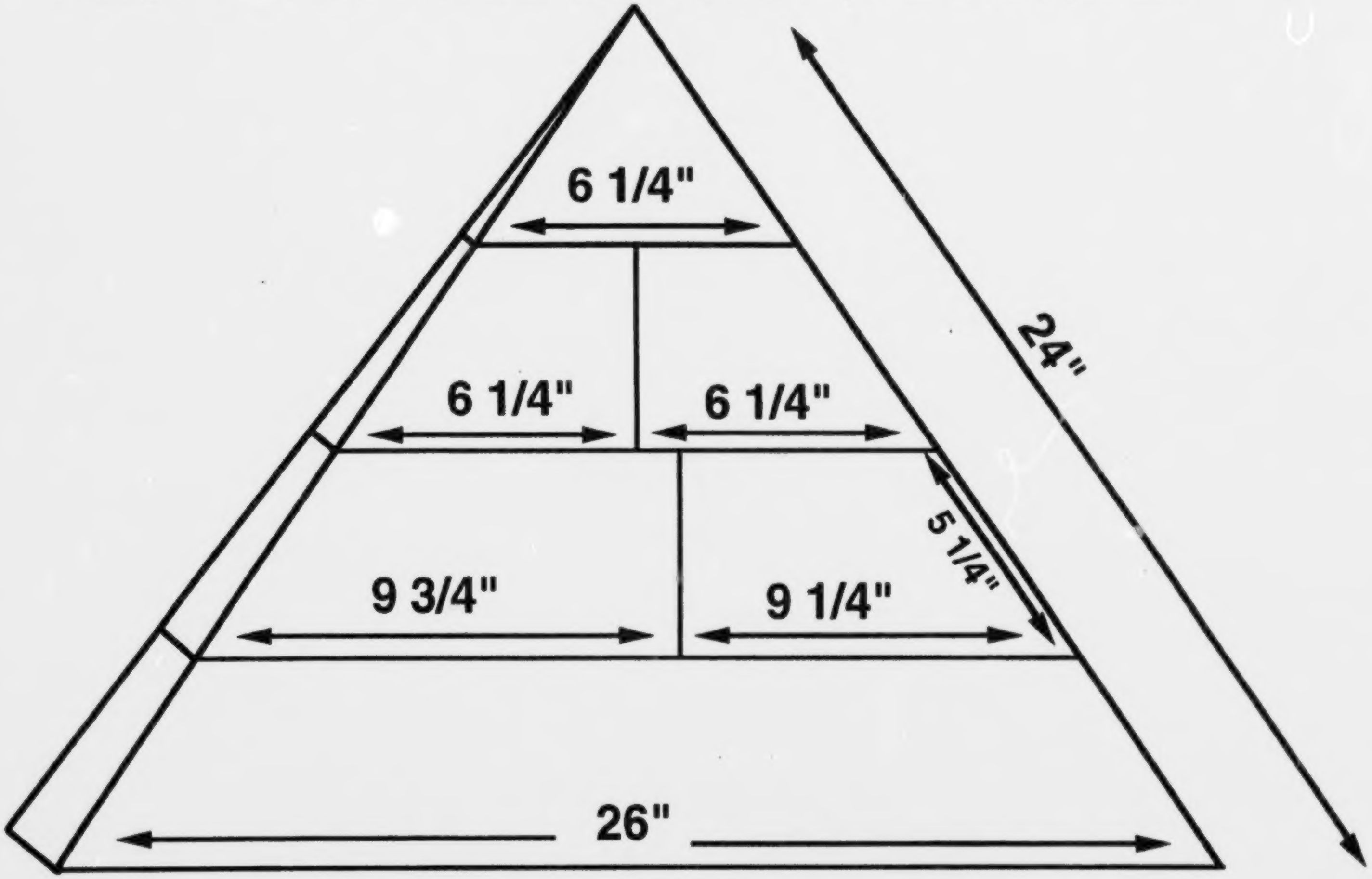
Food Guide Pyramid Sorting Mat

On a sheet of 24x36" drawing paper, measure the dimensions of the Food Guide Pyramid using a yardstick. Outline the Food Guide Pyramid with a marker and cut along the outside of your markings. Color, label or decorate your Food Guide Pyramid anyway you like!



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PYRAMID REFERENCE SHEET

1 Serving Equals:

Bread, Cereal, Rice Pasta (6-11)	1 slice of bread half a hamburger or hot dog bun half a bagel or English muffin 1/2 cup of pasta, rice or cooked cereal 1 ounce of cereal
Vegetable (3-5)	1 cup of raw leafy vegetables 1/2 cup cooked or chopped vegetables 3/4 cup vegetable juice
Fruit (2-4)	1 medium apple, orange, or banana 1/2 cup chopped, cooked, or canned fruit 3/4 cup fruit juice
Meat, Poultry, Fish Dry Beans,Eggs, Nuts (2-3)	2-3 ounces of cooked lean meat, poultry or fish 1 cup cooked dry beans 2 eggs 4 tablespoons peanut butter
Milk, Yogurt, Cheese (2-3)	1 cup milk 1 cup yogurt 1 1/2 ounces of natural cheese 2 ounces of processed cheese

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education,1993; Revised 1996.

Funded by a grant from USDA, NET Program.

“PYRAMID POWER”
GRADES 2 & 3

APPENDIX A
FOOD GUIDE PYRAMID SORTING CARDS

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

INSTRUCTIONS FOR USING THE FOOD GUIDE PYRAMID SORTING CARDS

The Food Guide Pyramid Sorting Cards are located on the next page.

The Food Guide Pyramid sorting cards picture a variety of foods and illustrate the food group in which the food belongs according to the USDA's Food Guide Pyramid (the sorting cards are found in appendix A of this unit).

The Serving Size Measure sorting cards provides a visual example of the amount of a food that is considered one serving according to the USDA's Food Guide Pyramid.

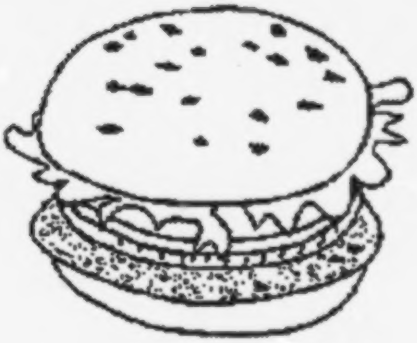
These sorting cards can be used in learning centers or in other lessons of the curriculum as a visual reinforcement. The cards are two-sided. One side pictures the food or serving size. The other side highlights the food group in which that food is categorized.

To make the sorting cards, photocopy the pictures and the matching pyramid front to back. Copy as many sets as you need, one set per student or per groups of students.

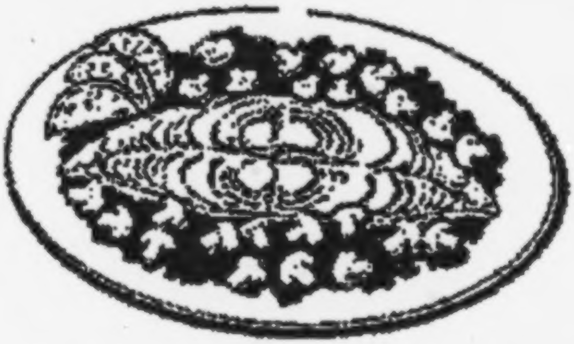
The broken lines on the cards indicate where to cut but you'll need to trim them to make each set of cards uniform in size.

There are approximately 15 Bread, Cereal, Rice and Pasta cards; 24 Vegetable cards; 24 Fruit cards; 6 Milk, Yogurt, and Cheese cards; 13 Meat, Poultry, Fish, Dry Beans, Eggs and Nuts cards; 4 showing combination meals; and 4 cards representing foods from the fats, Oils, and Sweets. There are 12 serving size cards. You may choose to use all the cards from each group or just some. You may make the selection based on the foods that are appropriate for your class.

The cards can be used in many ways. Coloring them adds to the aesthetic appeal. Laminating adds years to their usefulness. The cards may be used for sorting by food groups but also by plants or animal origins, color, shape, first letter of the alphabet, means of growth (vine, bush, tree, etc.) and many other ways. We encourage you to try other creative ways to use the sorting cards.



hamburger on a bun



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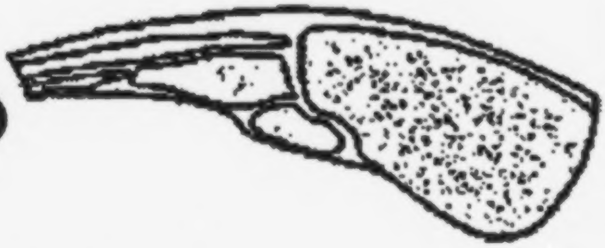

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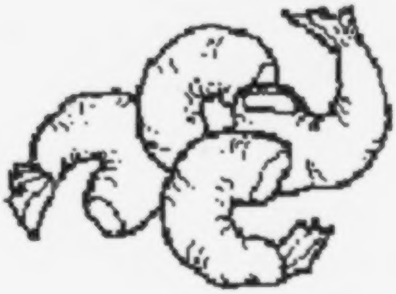
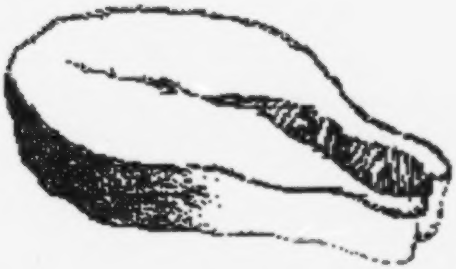
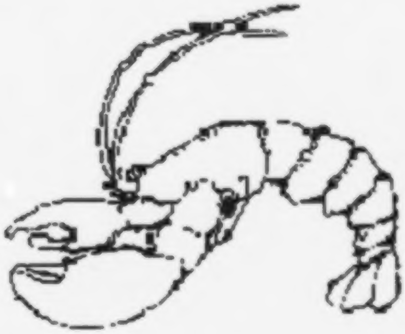


shrimp

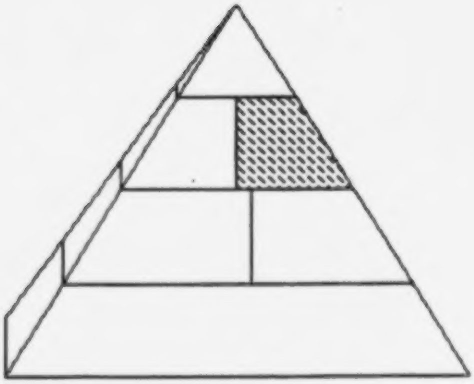


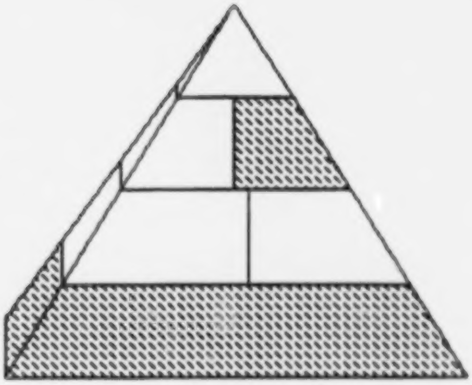
salmon steak

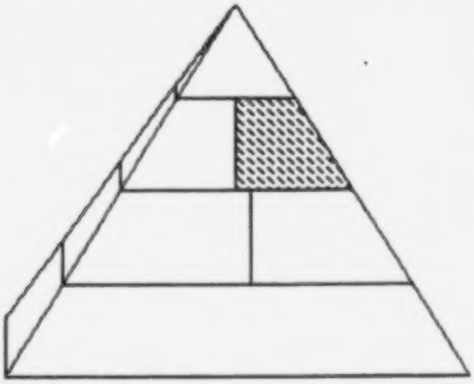


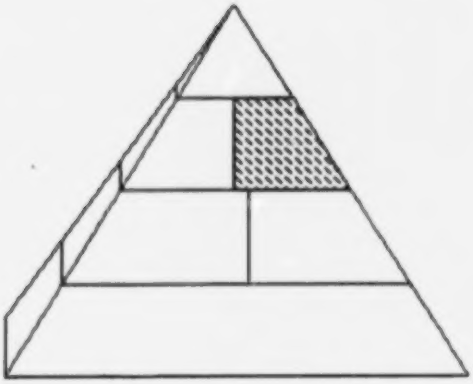
lobster

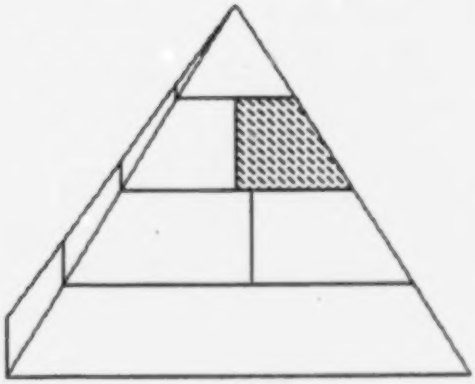
front 1

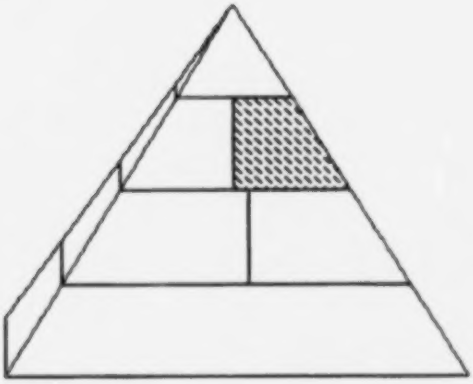












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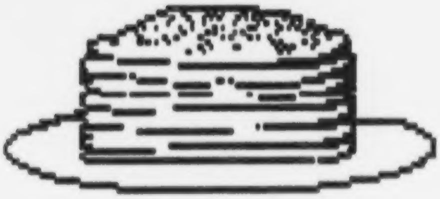

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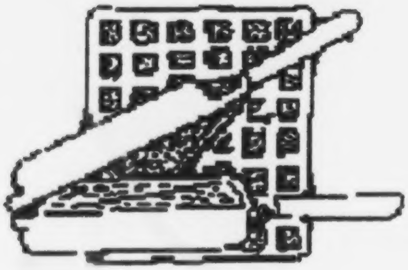

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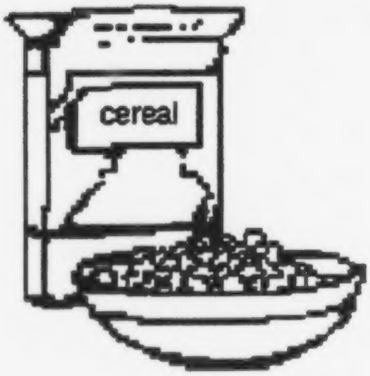

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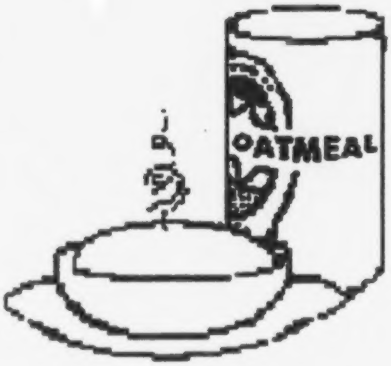

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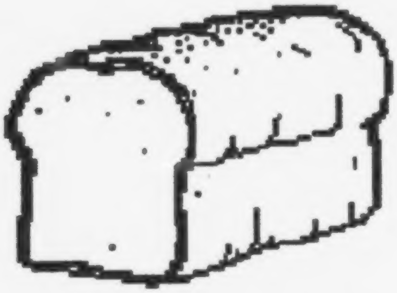
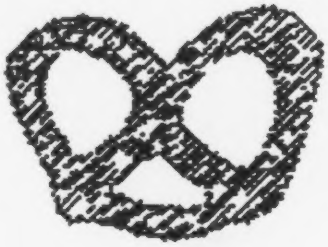
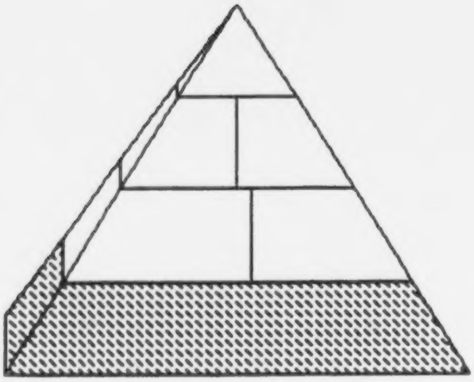
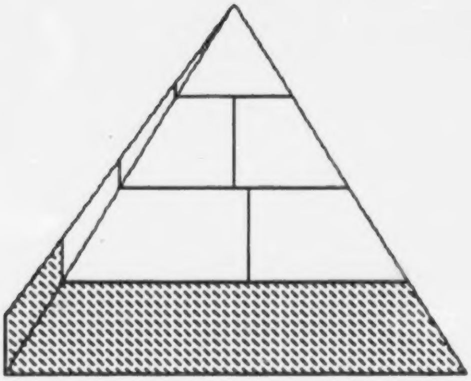


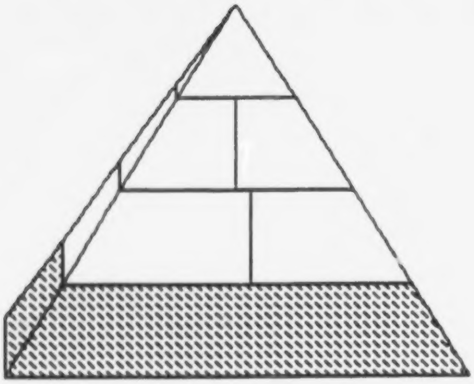
white bread

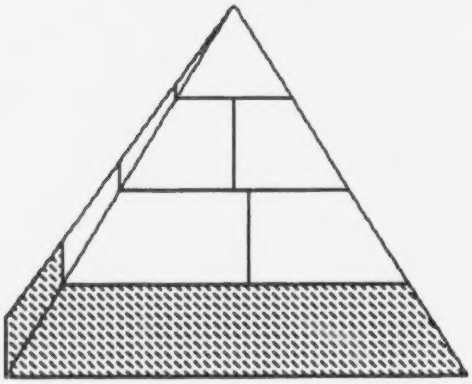


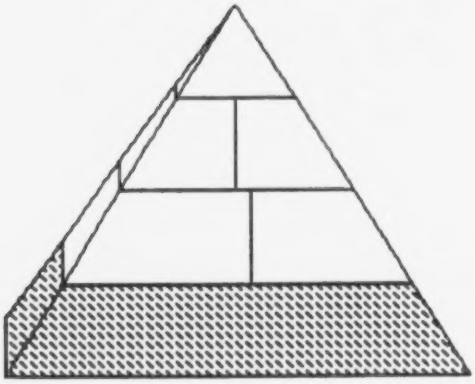
pretzel

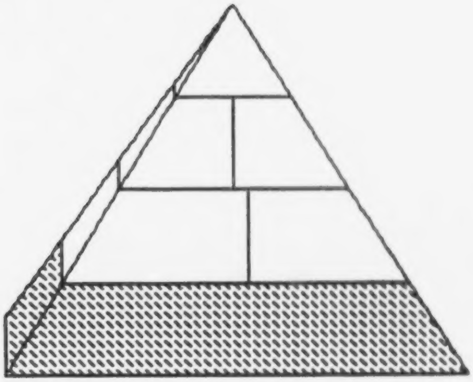












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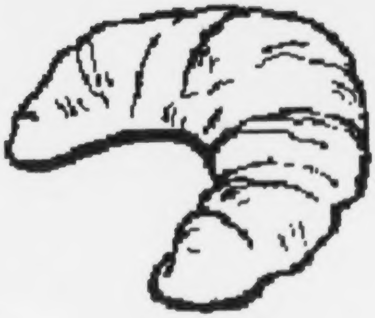

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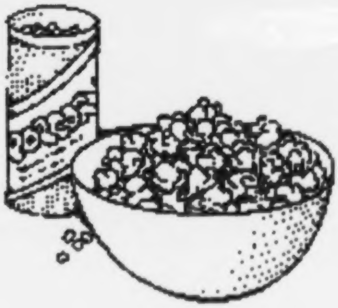

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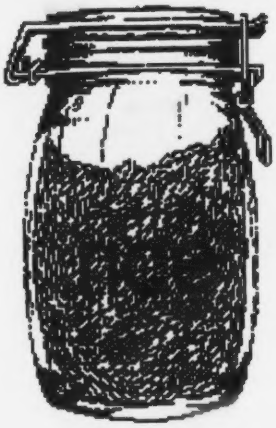
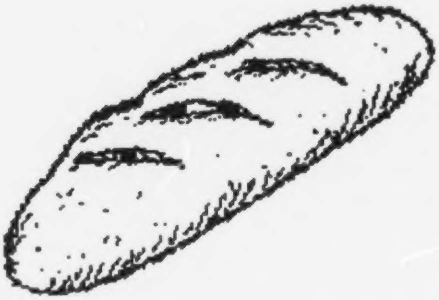
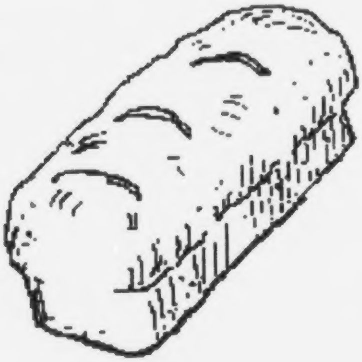


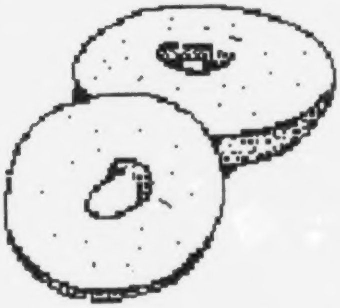
rice



french bread

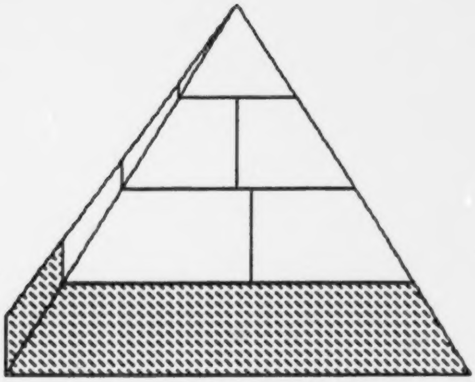


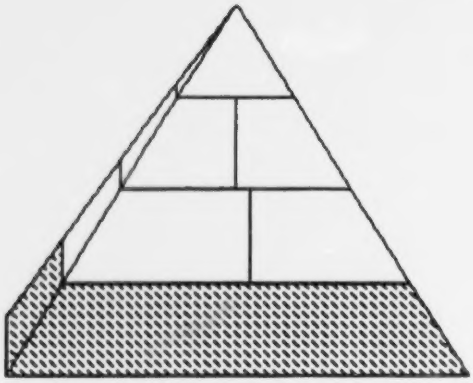
100% whole wheat bread

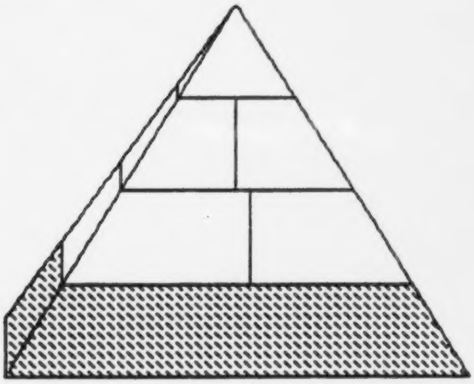


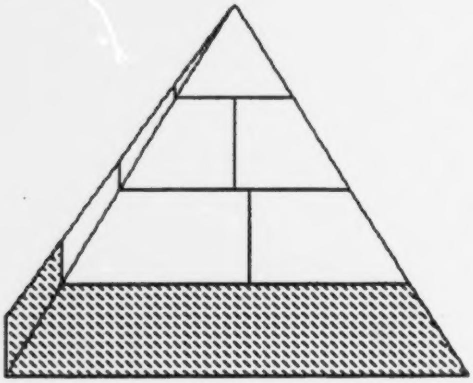
bagel

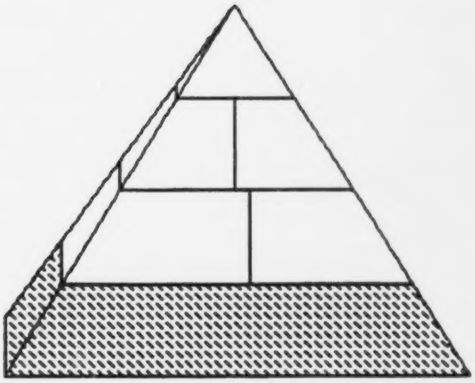
front 3

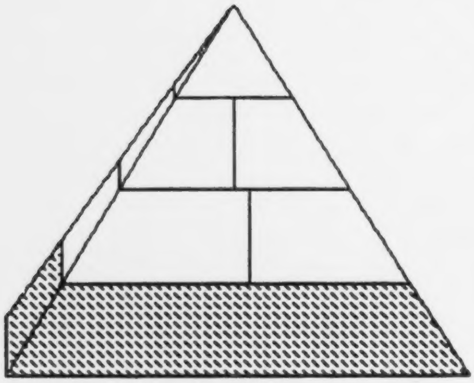


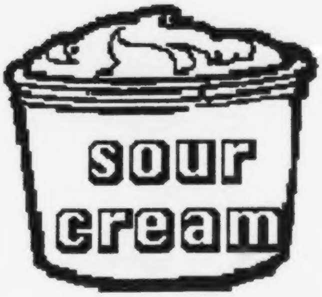




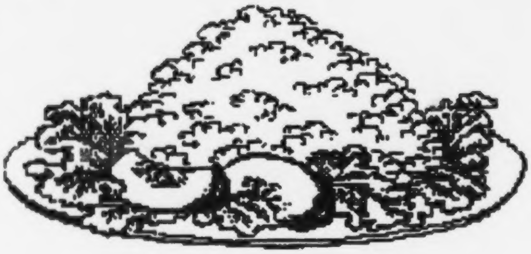




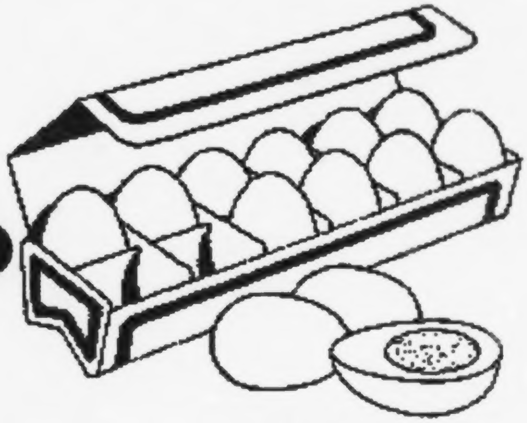




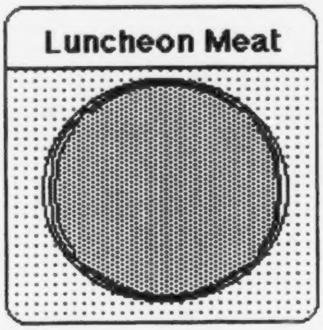
sour cream



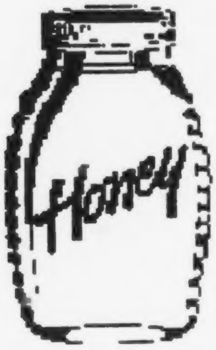
cottage cheese



eggs


Luncheon Meat

lunch meat



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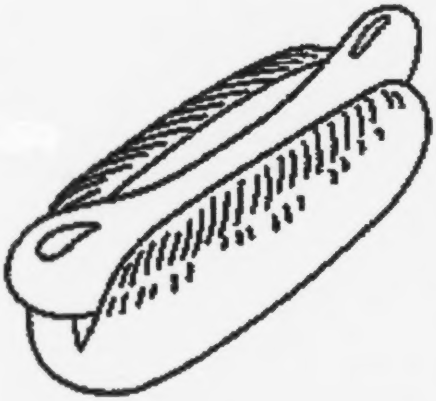

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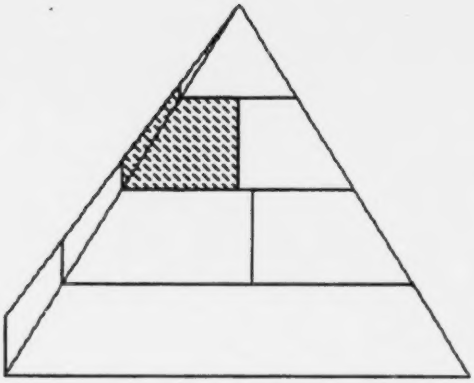

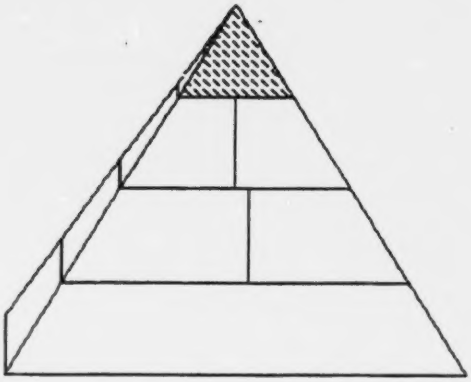

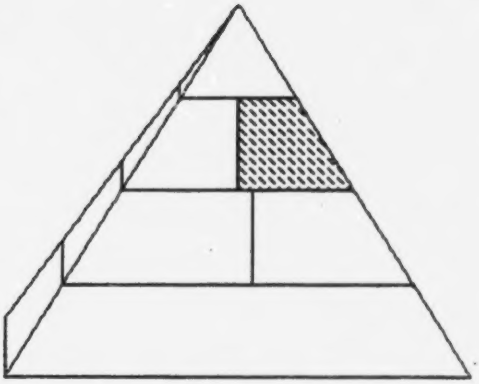

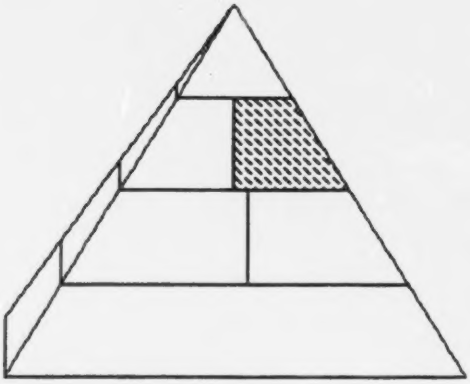

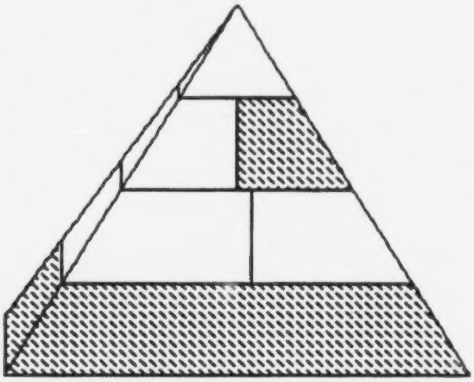

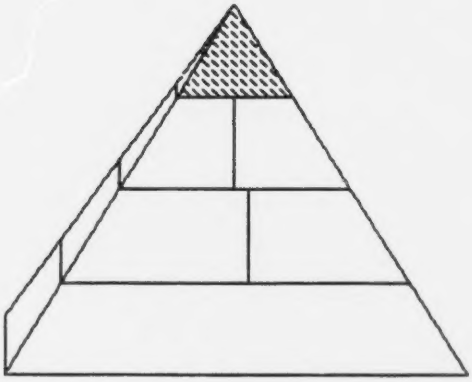

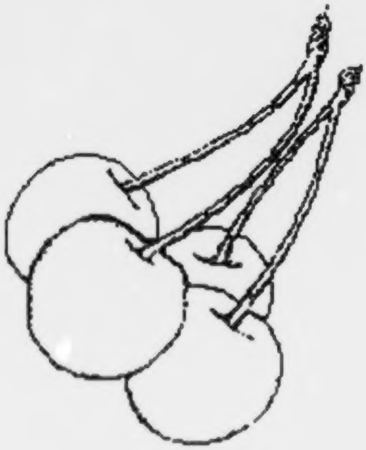

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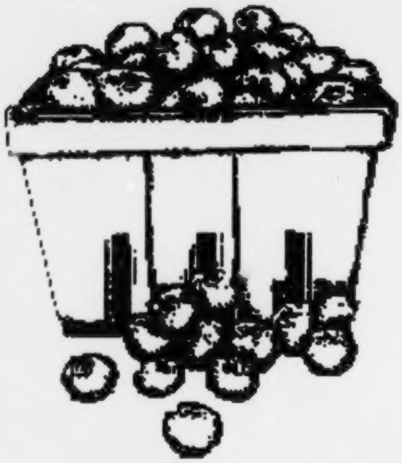

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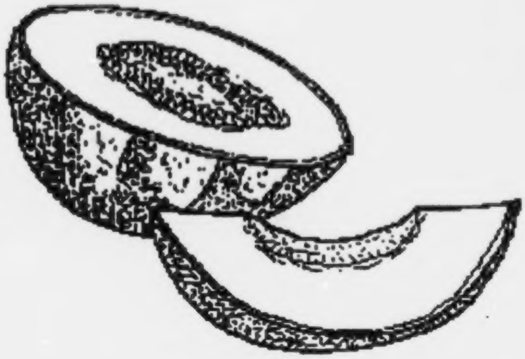

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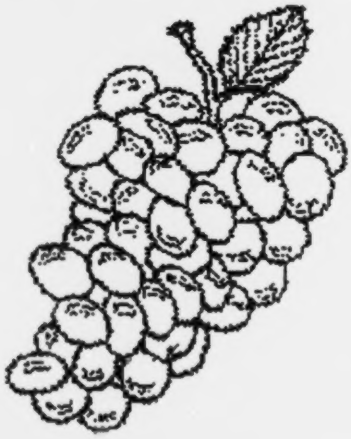

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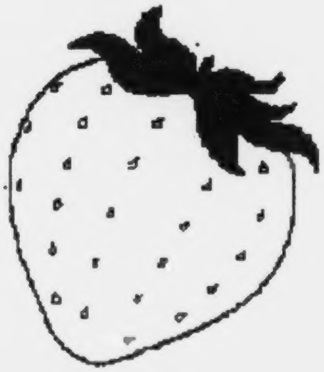

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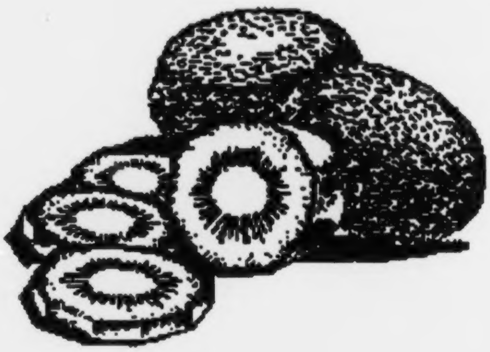
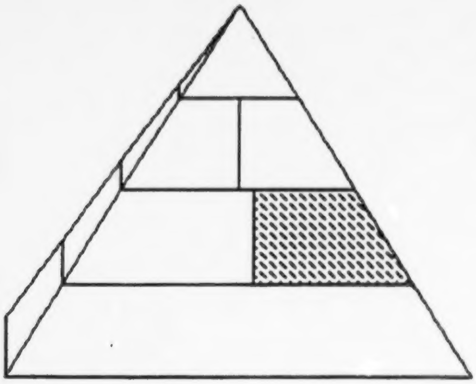
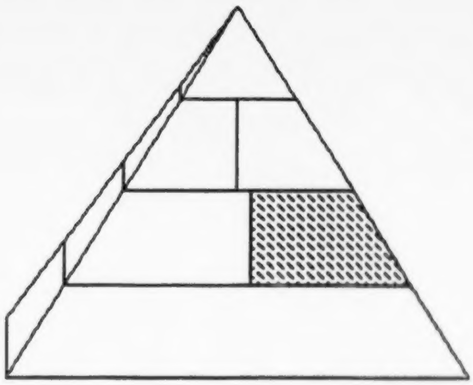
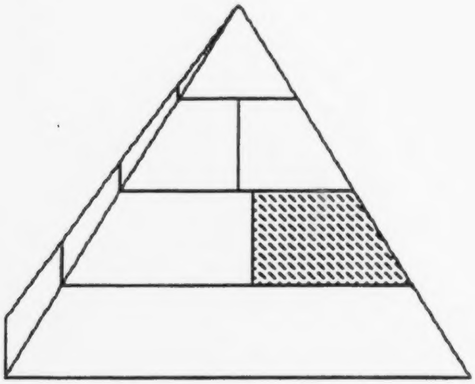
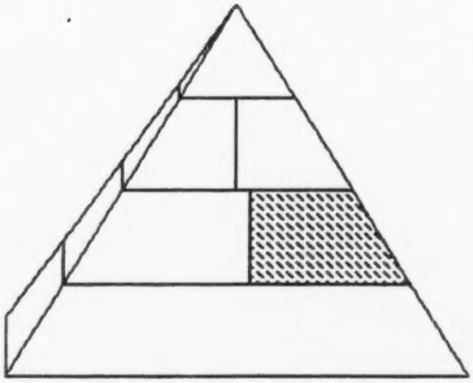


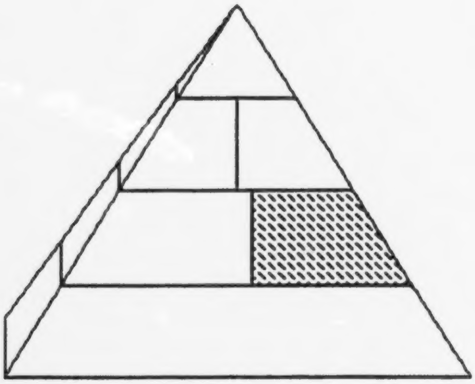
kiwifruit

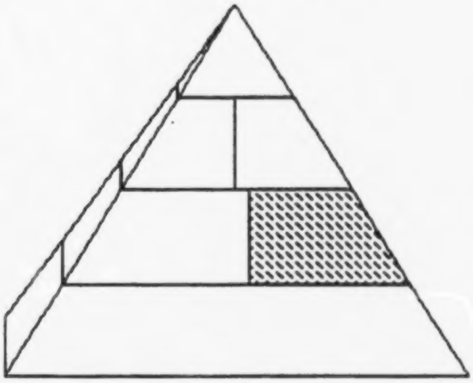




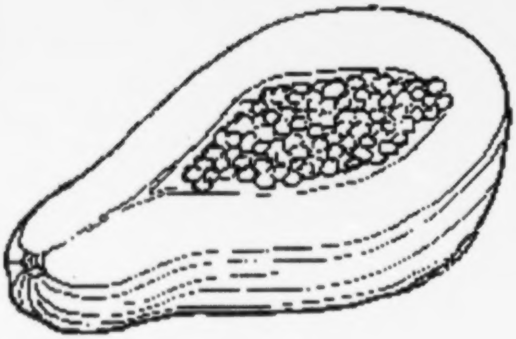








back 5



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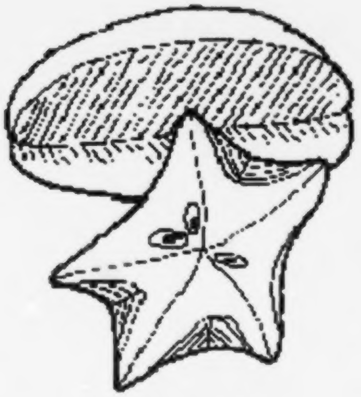

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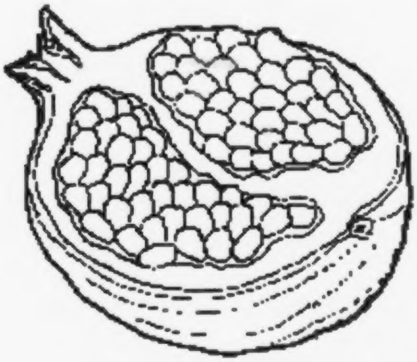

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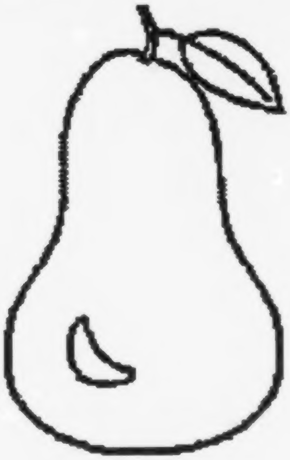

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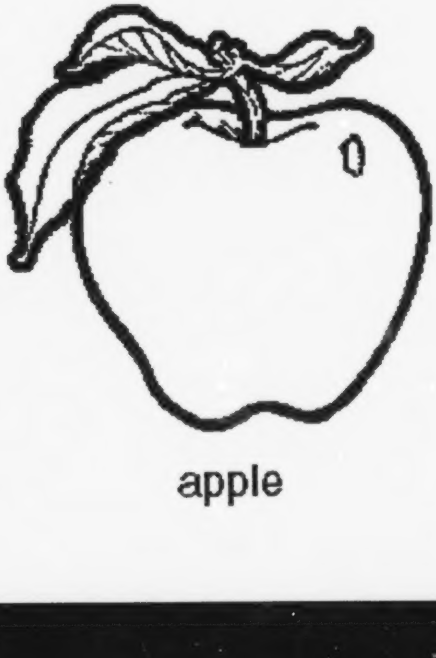

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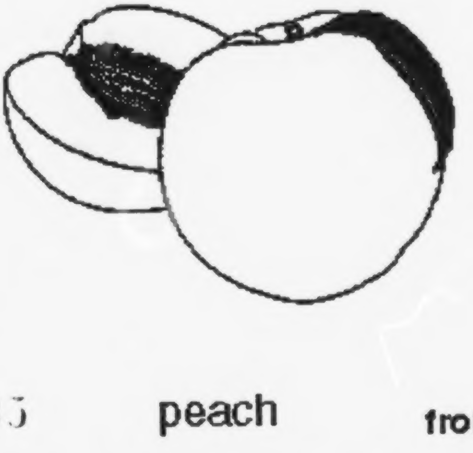

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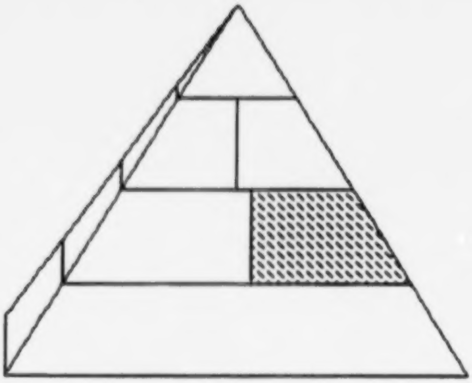

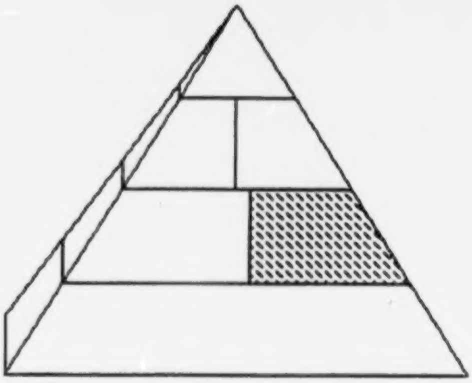

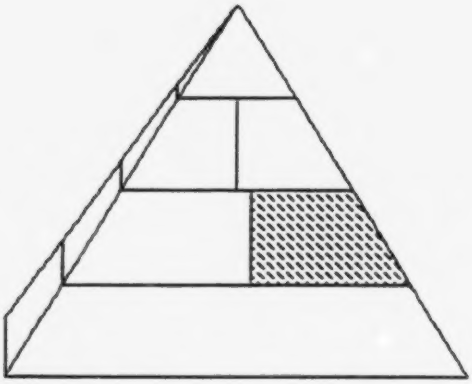

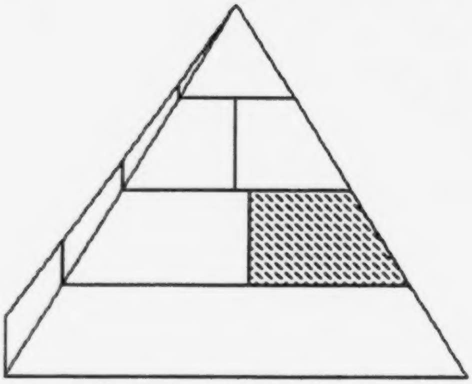

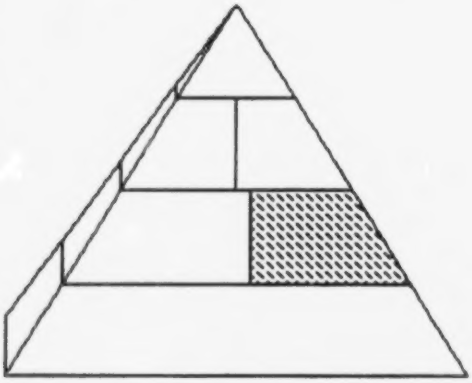

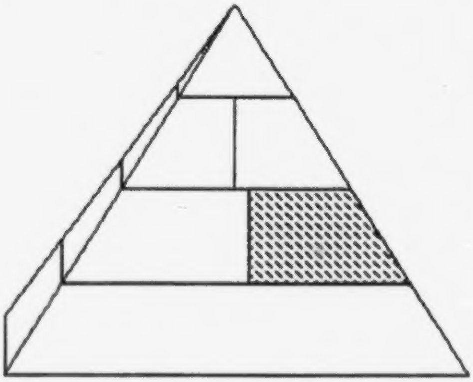

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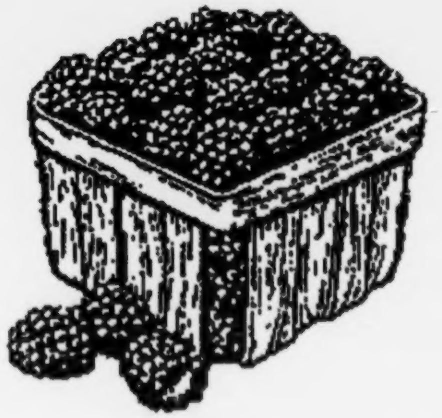
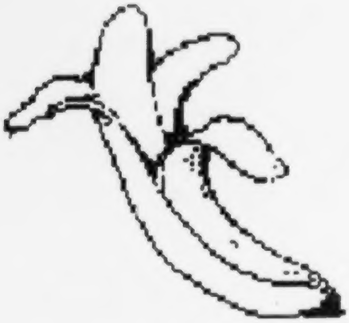
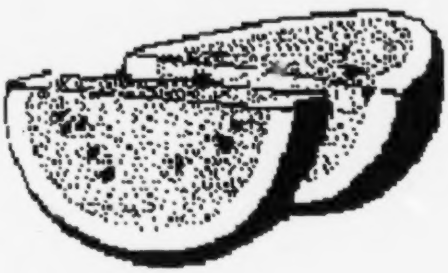


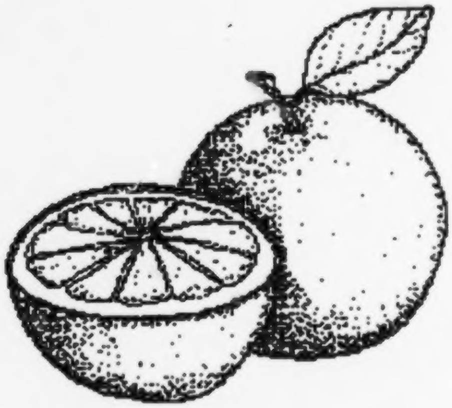
raspberries



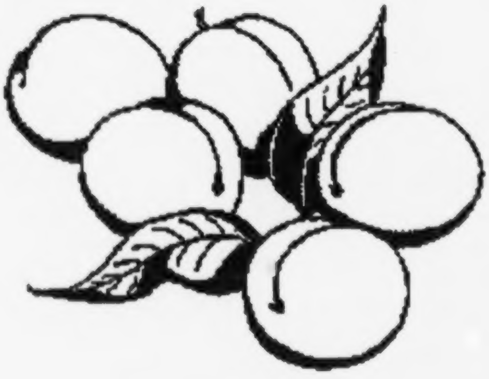
banana



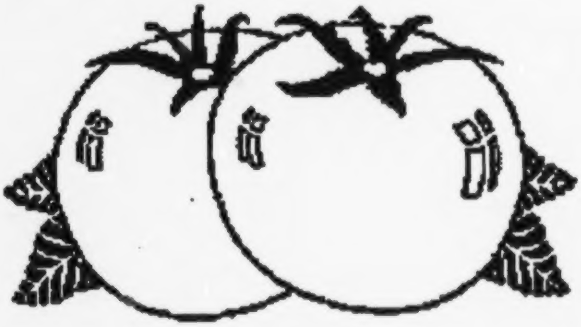
watermelon



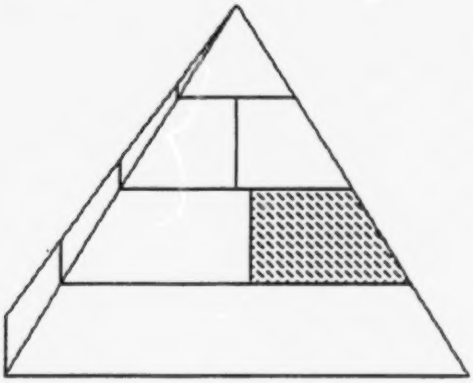
orange

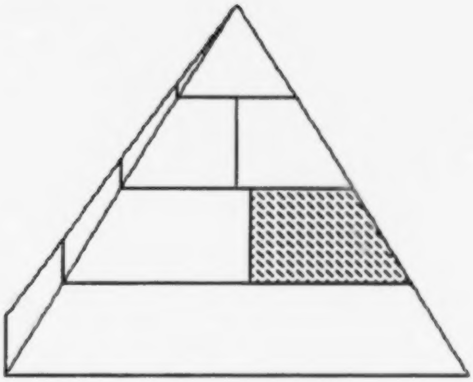


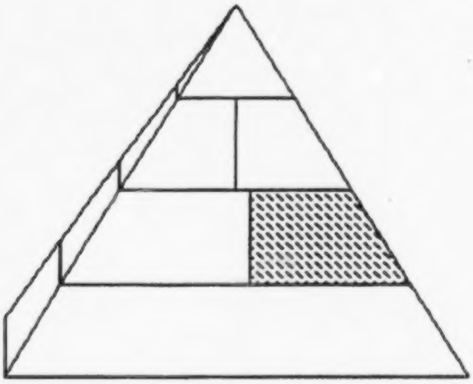
apricot

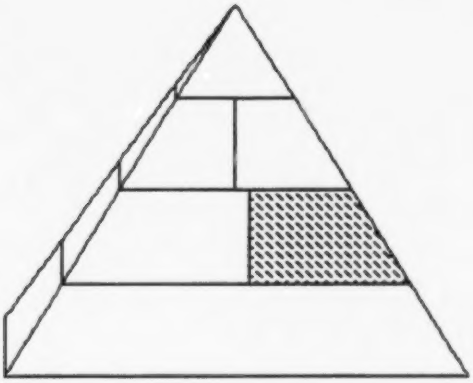


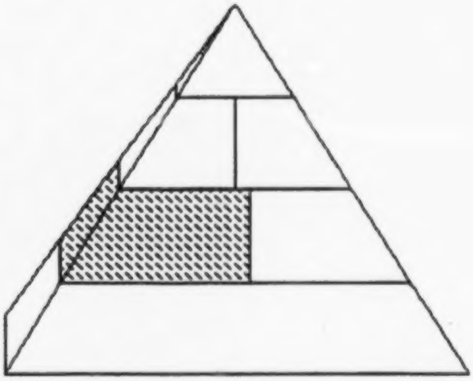
tomato

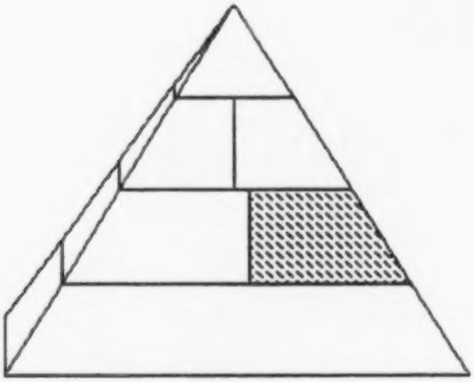


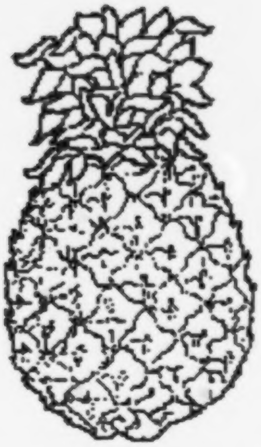




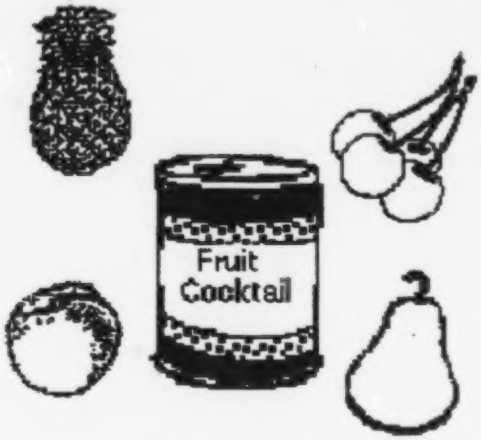




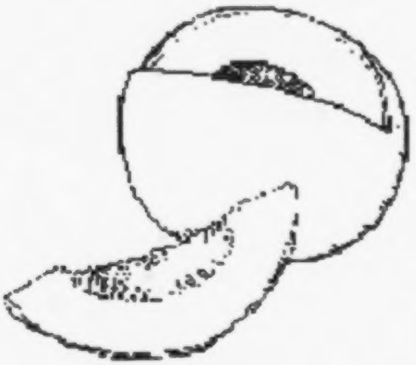




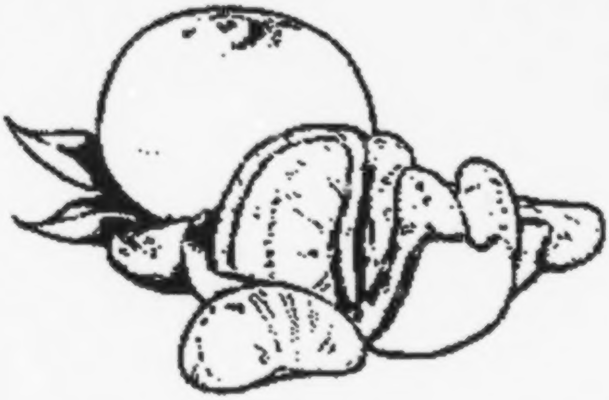
pineapple


Fruit
Cocktail

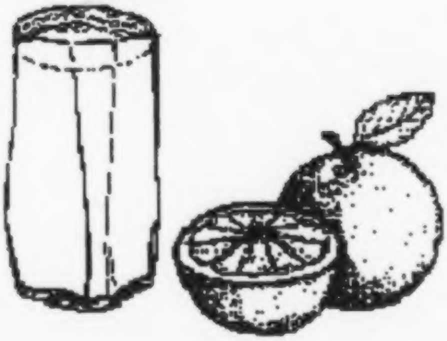
fruit cocktail



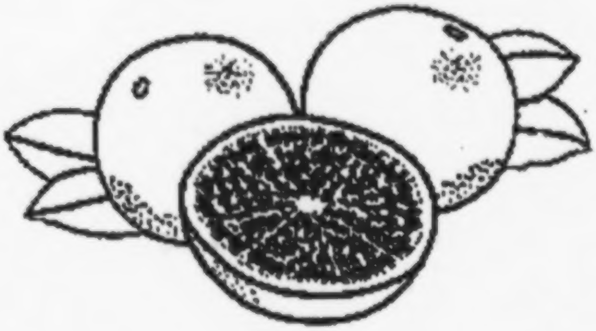
honeydew



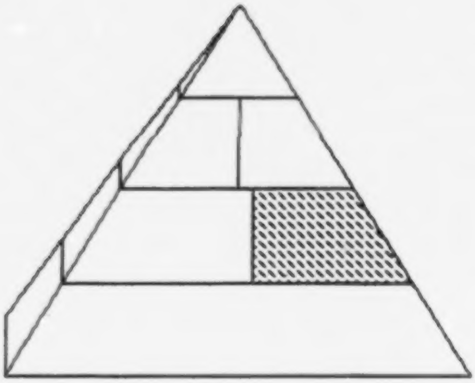
tangerine

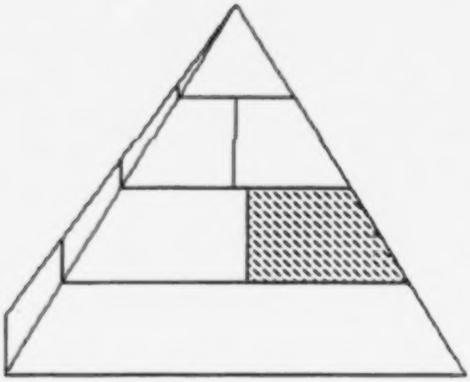


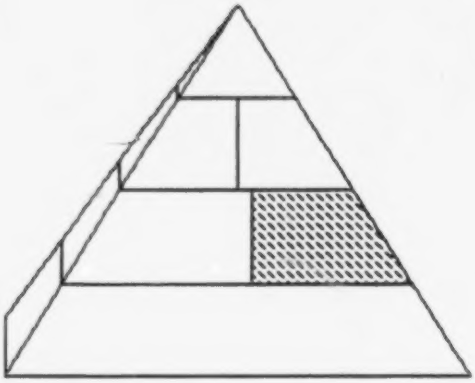
orange juice

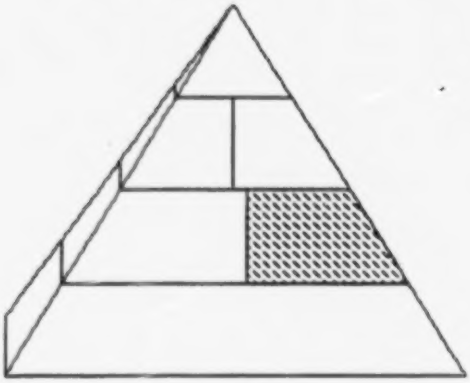


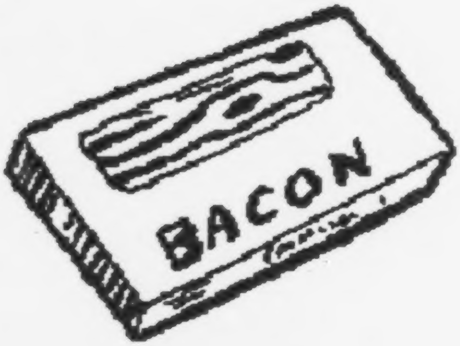
grapefruit



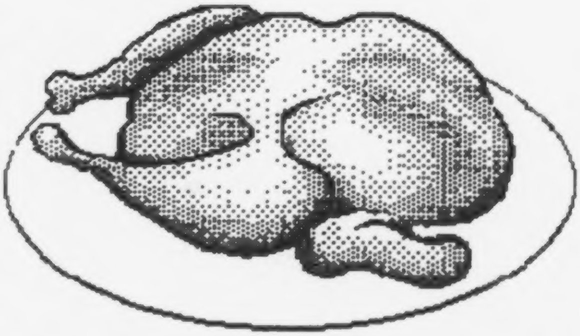




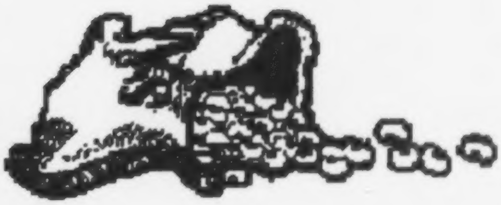




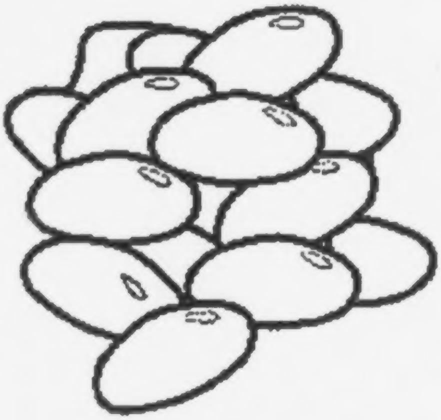
bacon



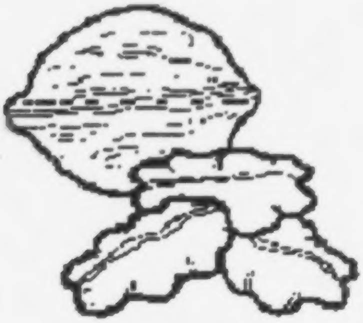
turkey



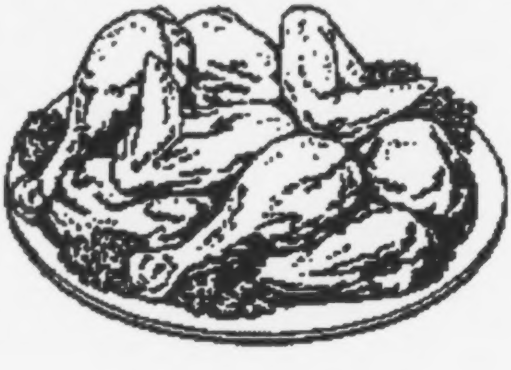
black eyed peas



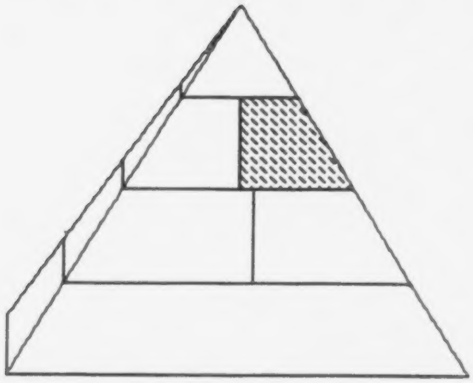
cooked dry beans

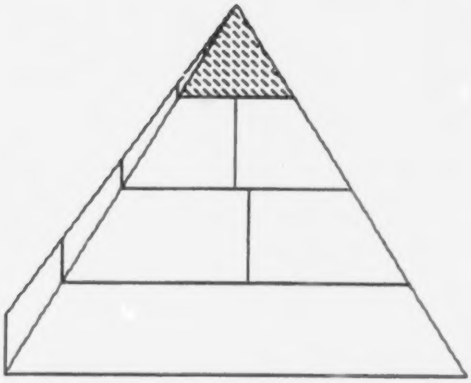


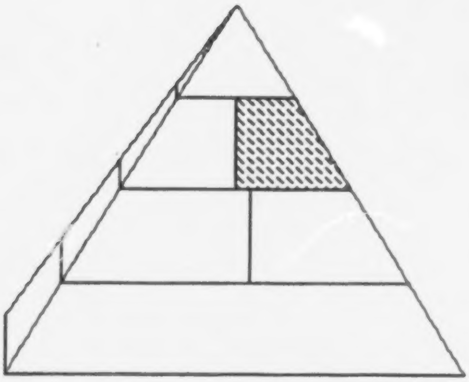
walnut

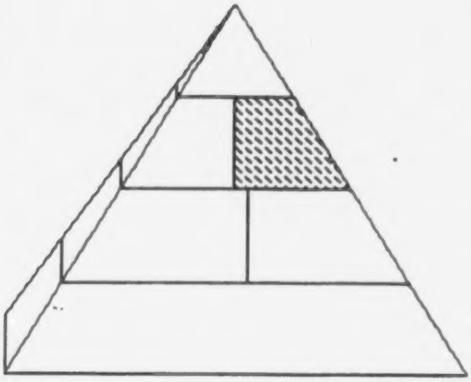


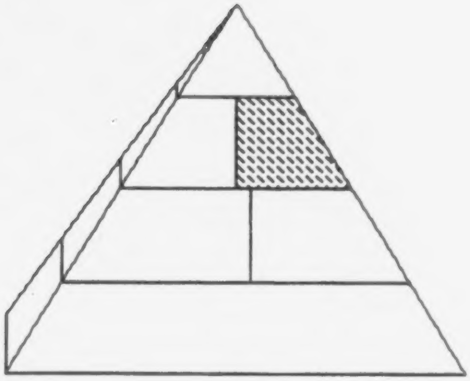
chicken

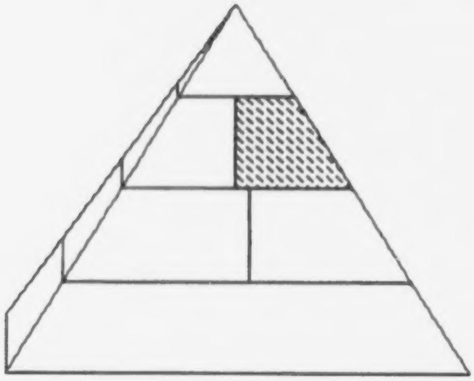












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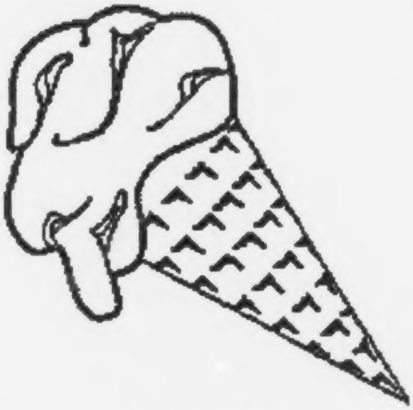
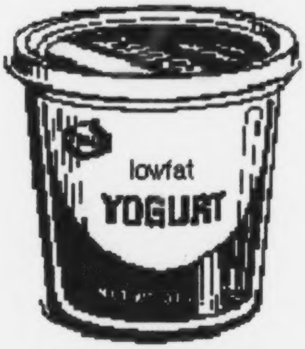
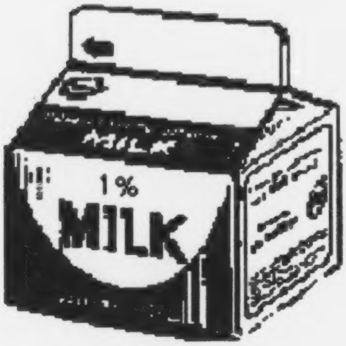


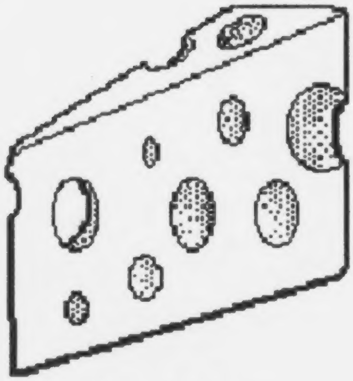
ice milk


lowfat
YOGURT

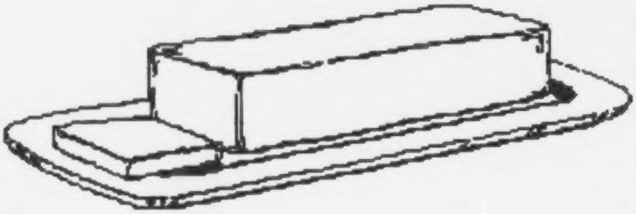
yogurt



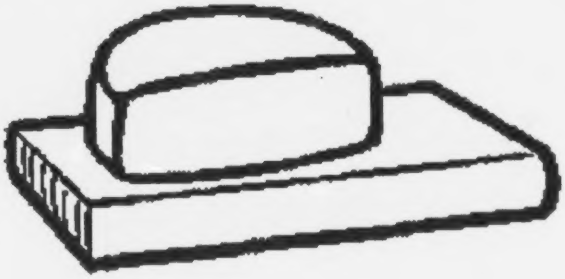
1% milk



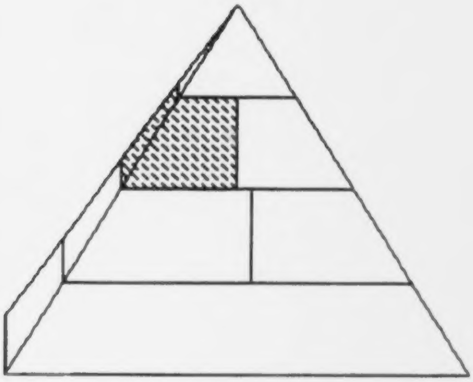
swiss cheese

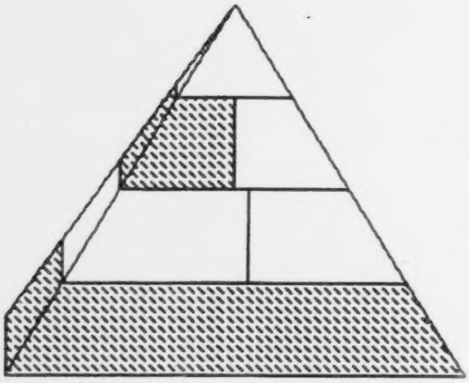


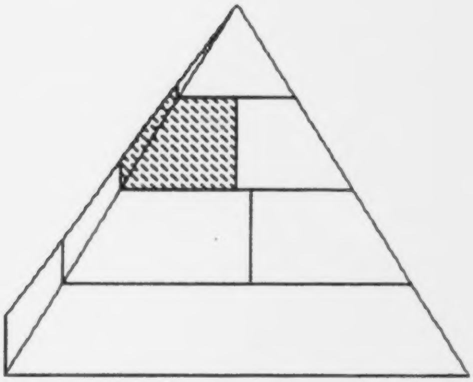
butter

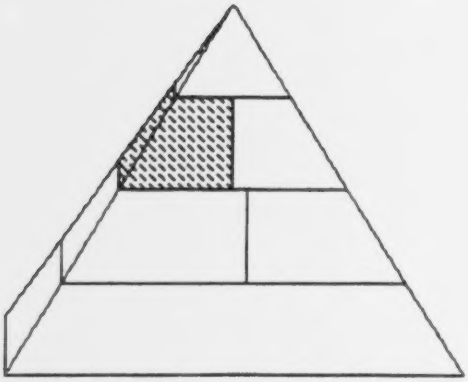


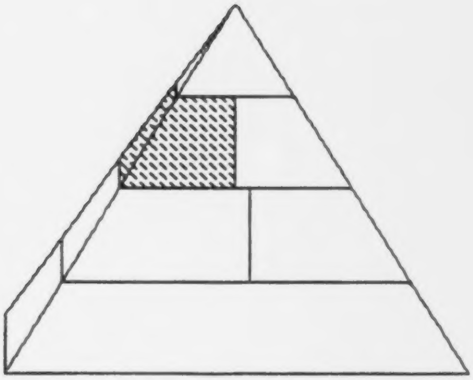
cheddar cheese

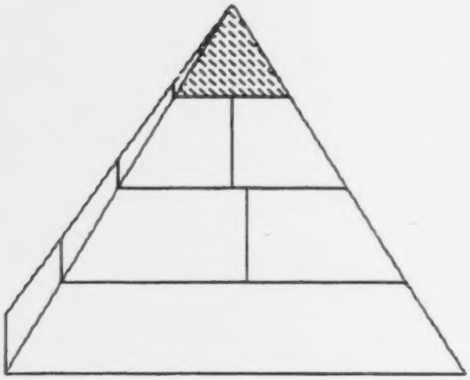












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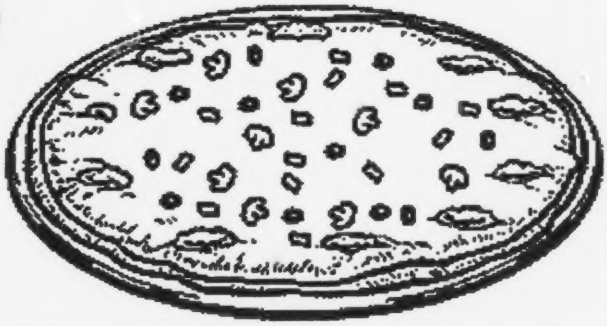
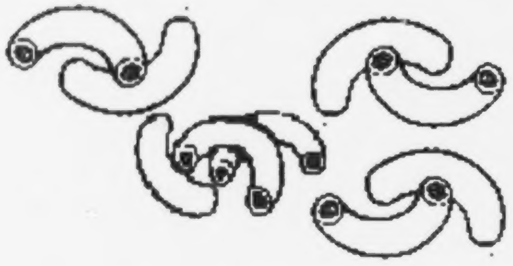
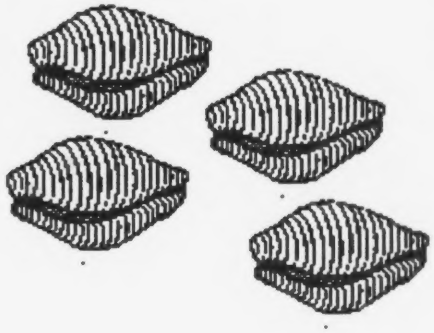


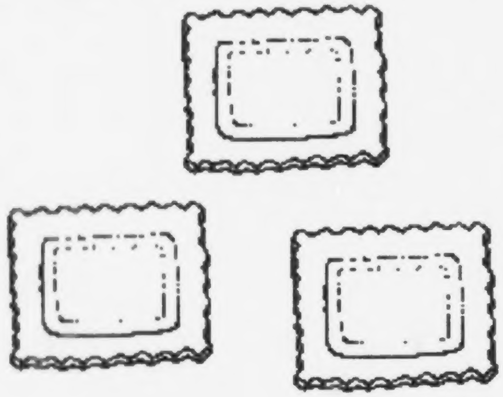
vegetable pizza



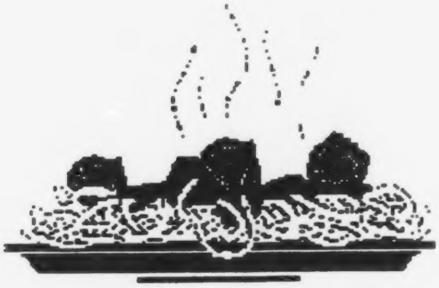
macaroni



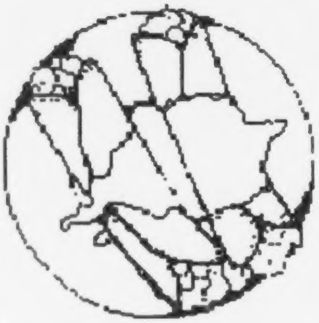
pasta shells



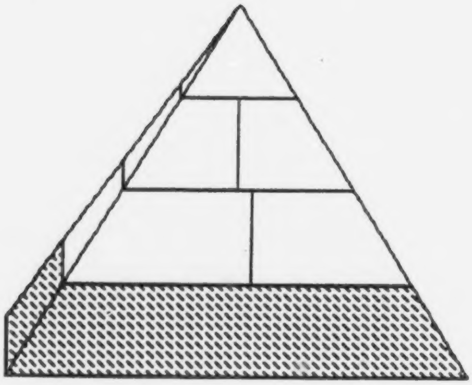
cheese ravioli

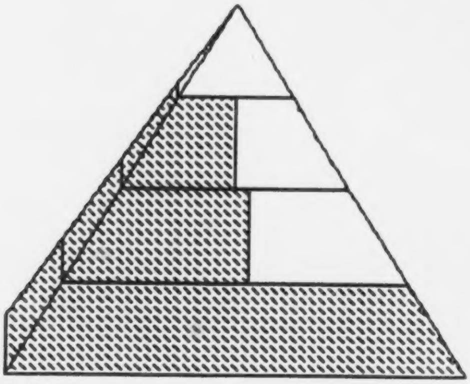


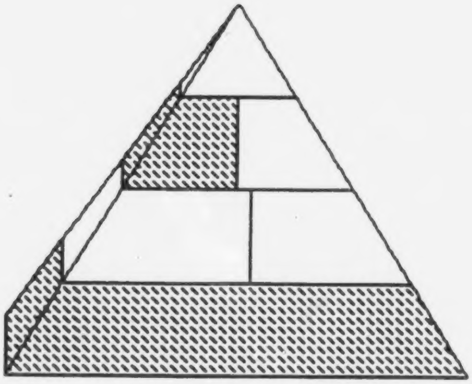
spaghetti and meatballs with tomato sauce

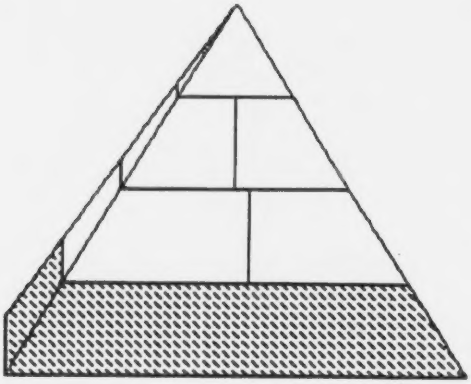


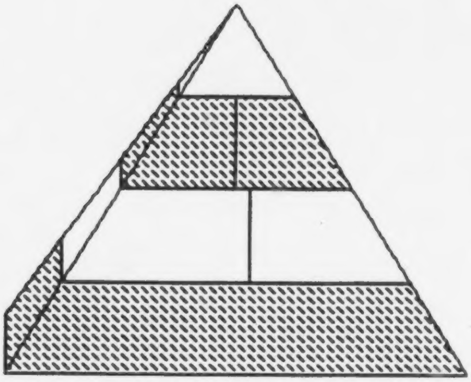
chicken enchilada

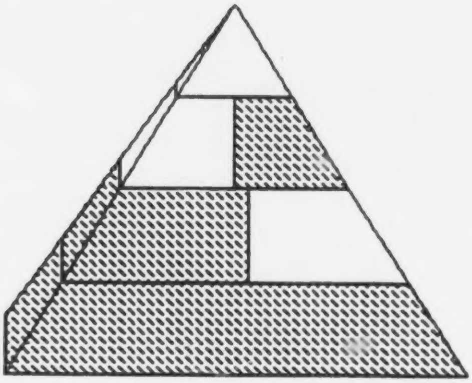












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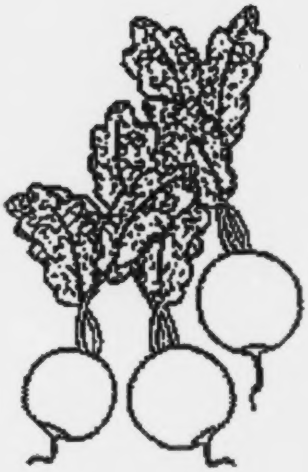
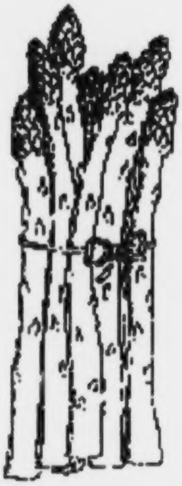
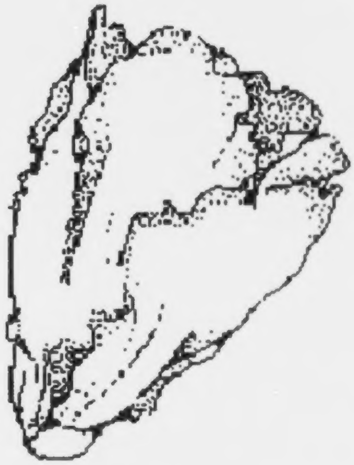
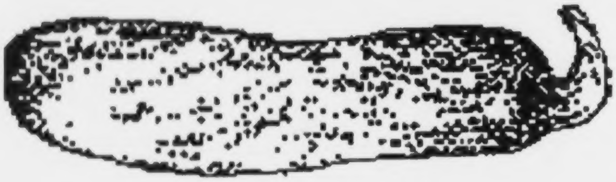
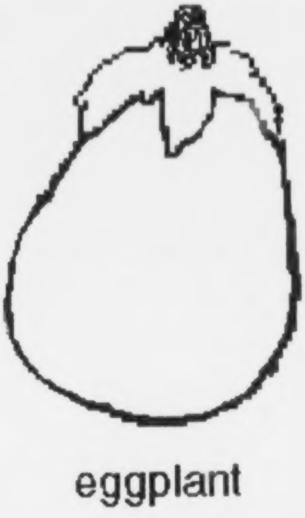
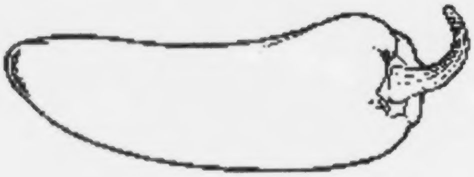

radish

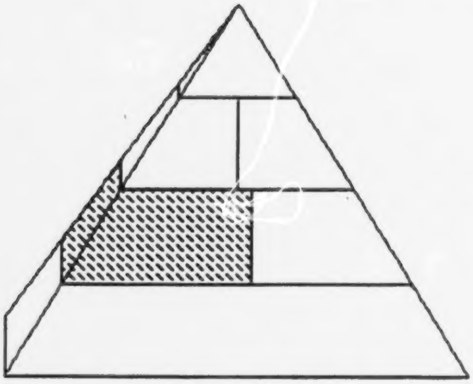

asparagus

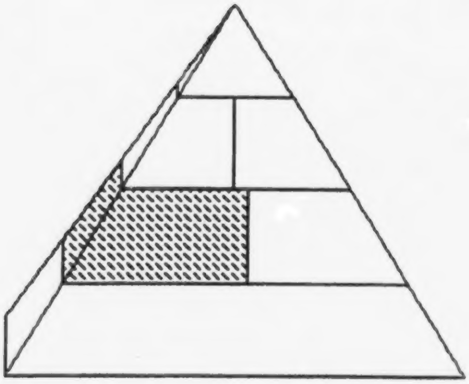

lettuce

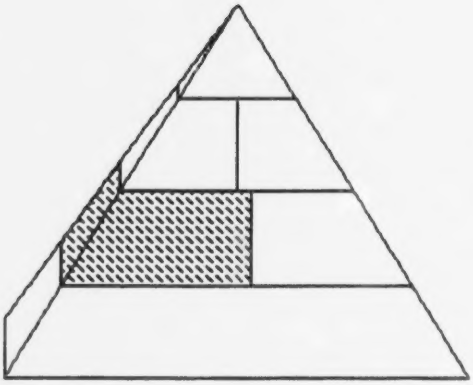

zucchini

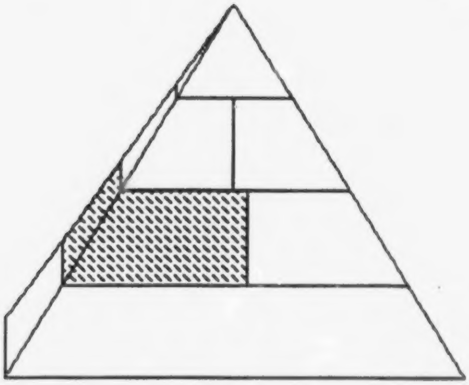

eggplant

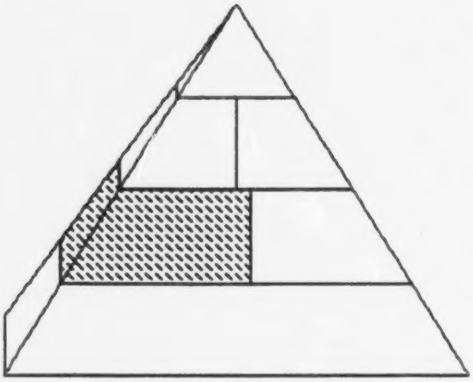

jalapeño

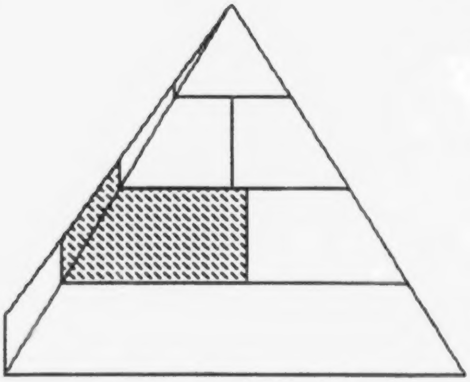




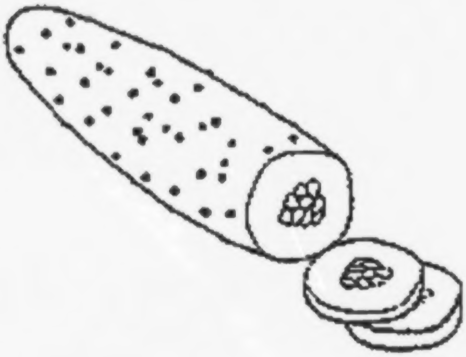




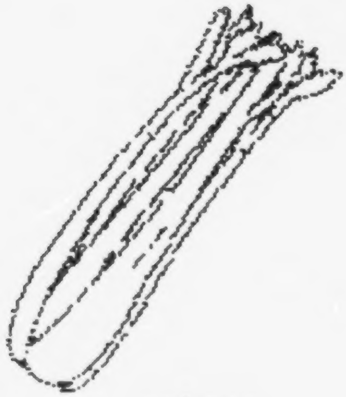




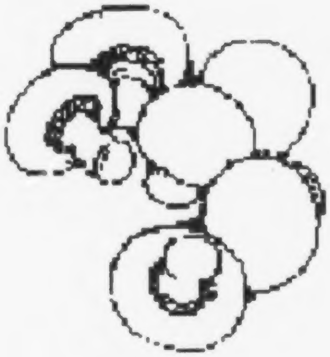
back 12



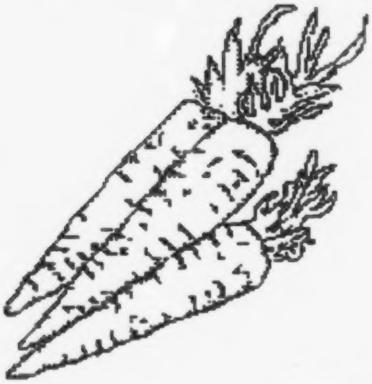
cucumber



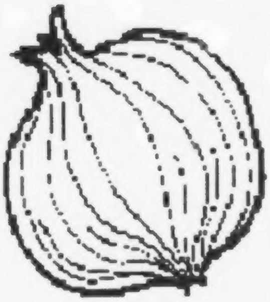
celery



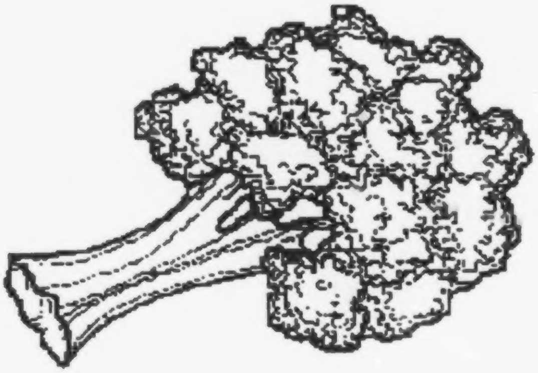
mushrooms



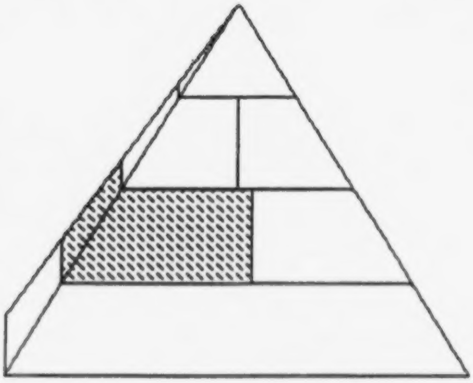
carrots

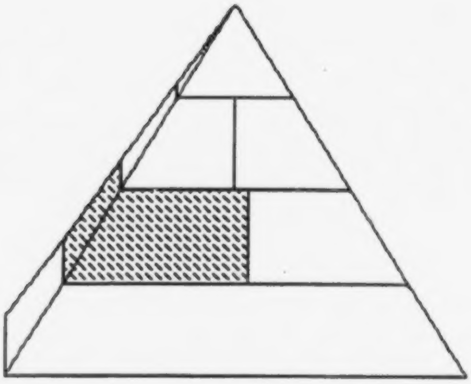


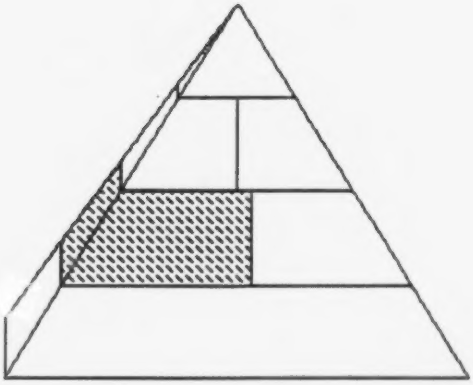
onion

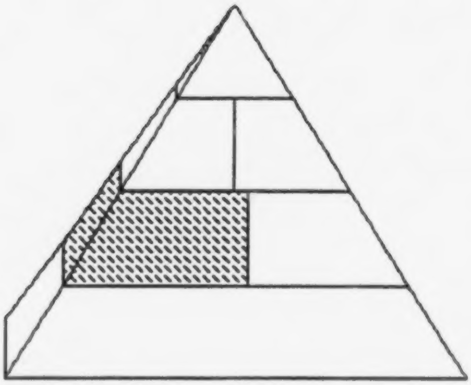


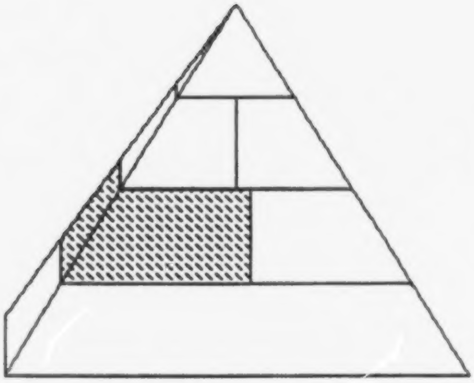
broccoli

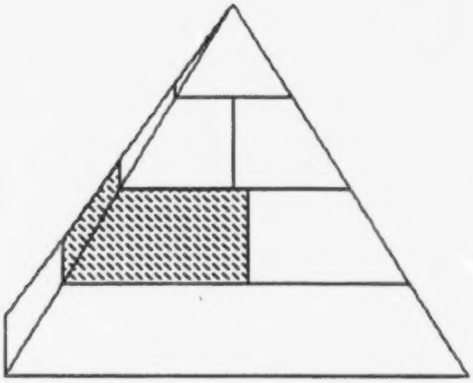


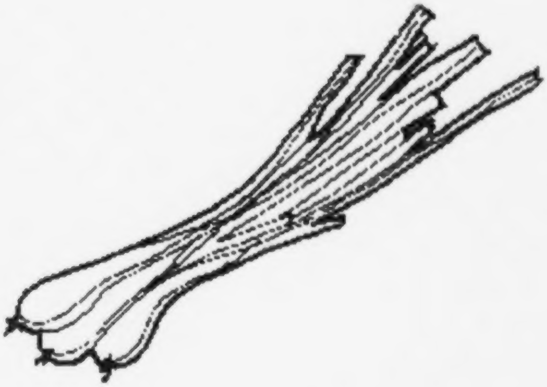




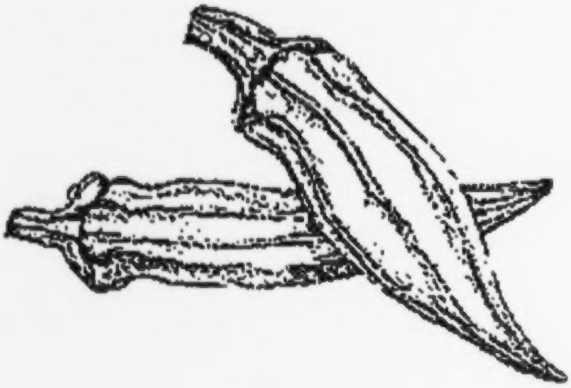




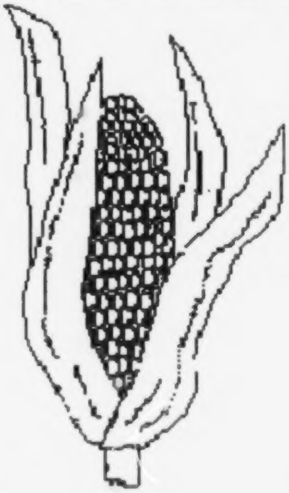




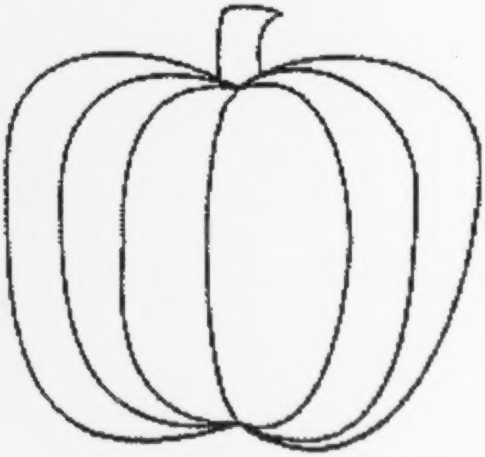
green onion



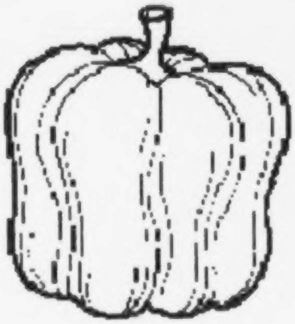
okra



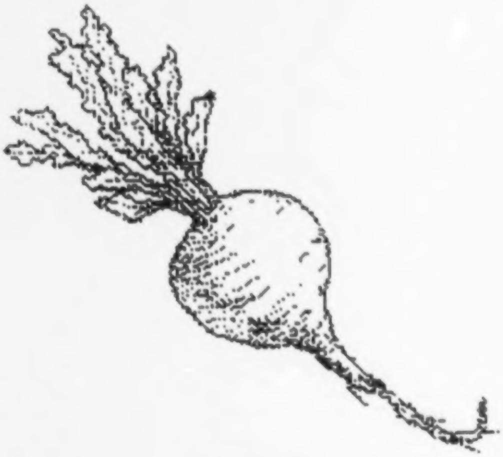
corn



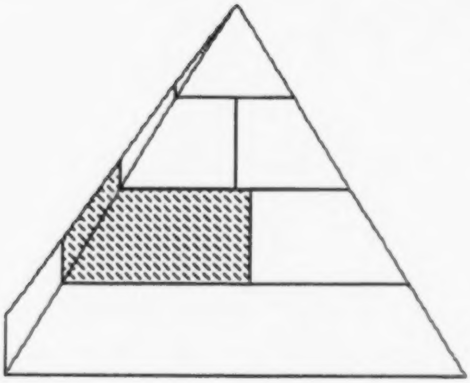
pumpkin

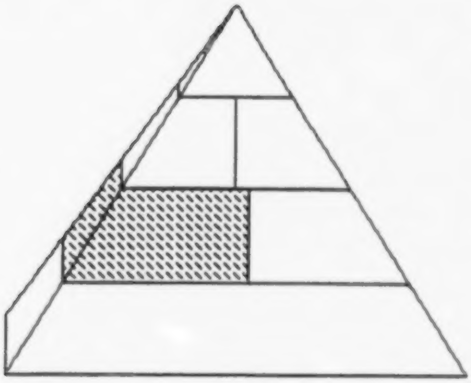


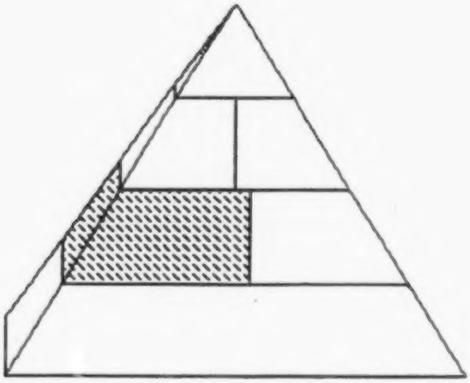
pepper

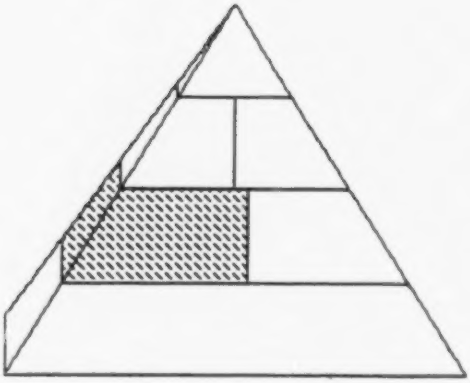


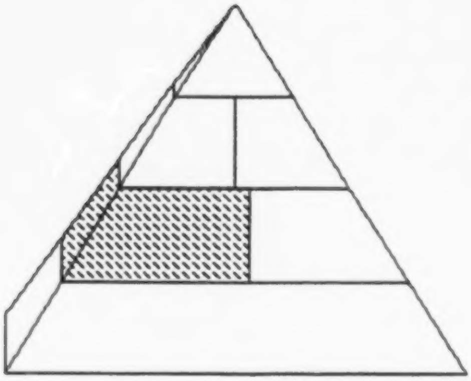
turnip

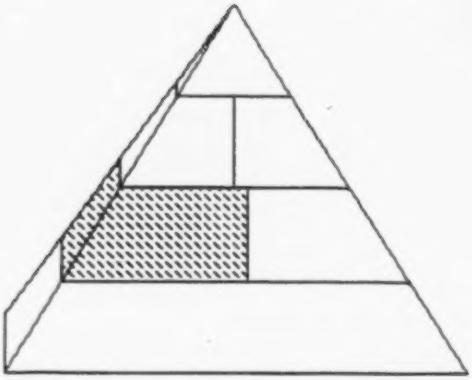




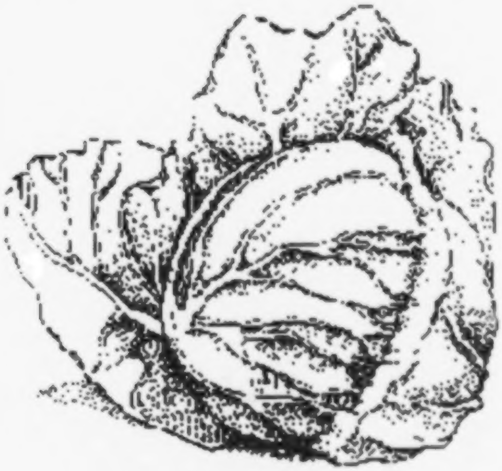




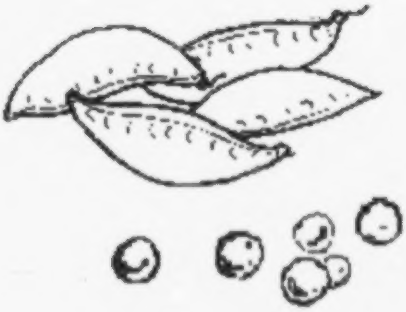




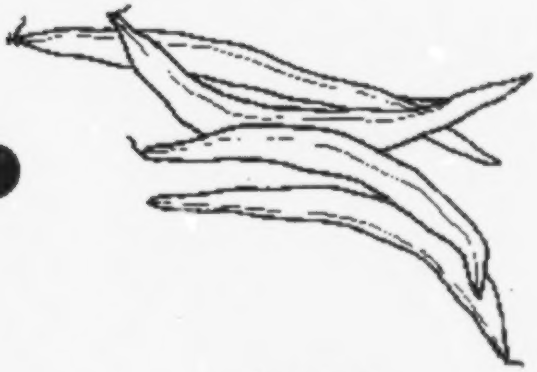
back 14



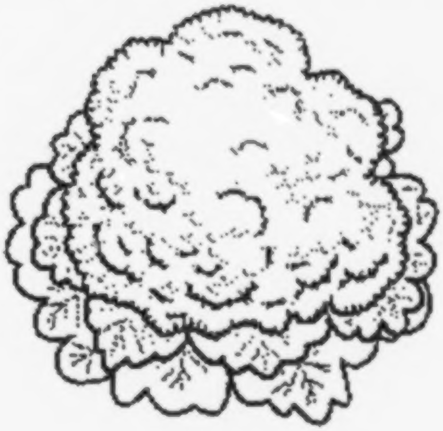
cabbage



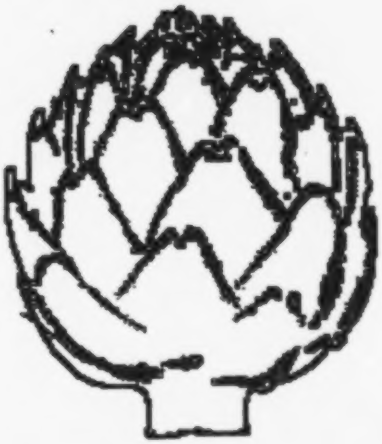
peas



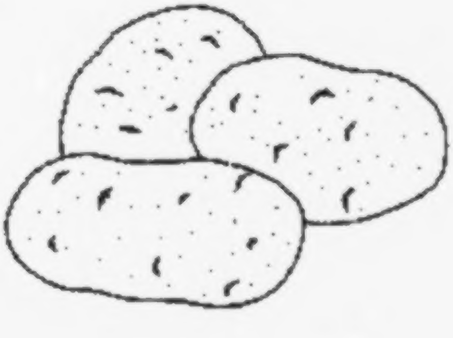
beans



cauliflower

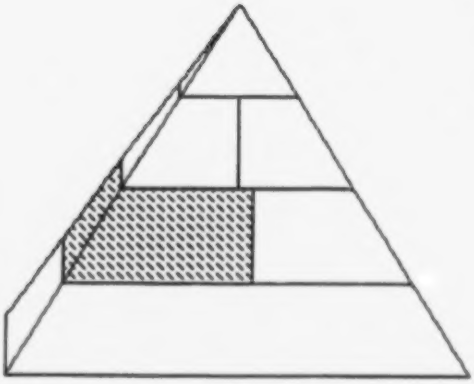


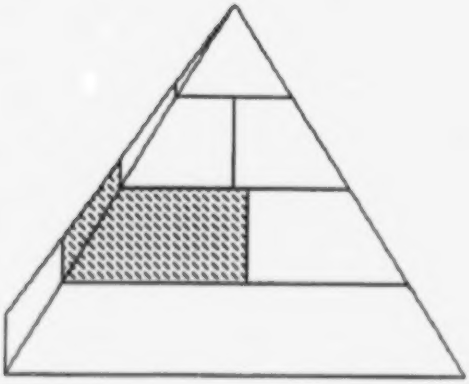
artichoke

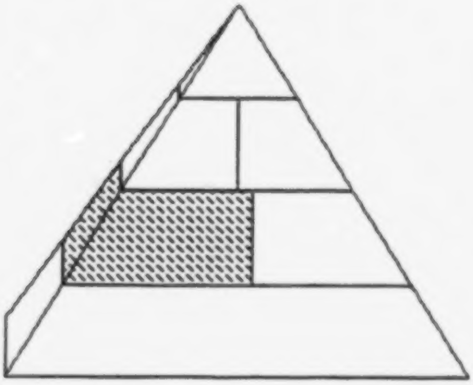


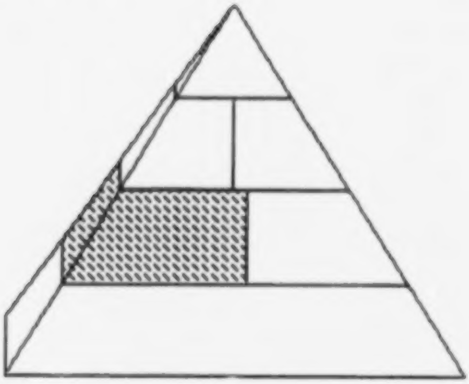
potato

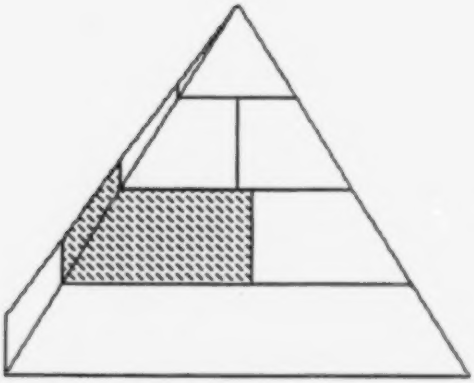
front 15

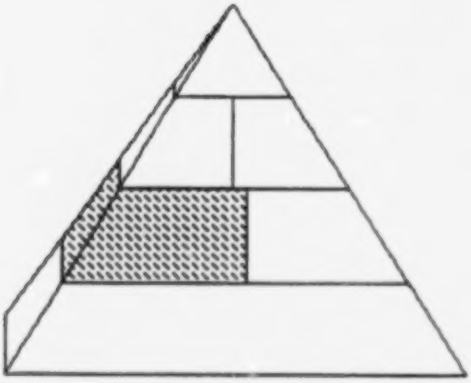


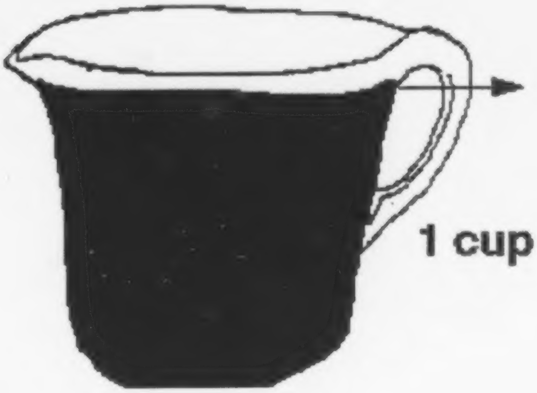




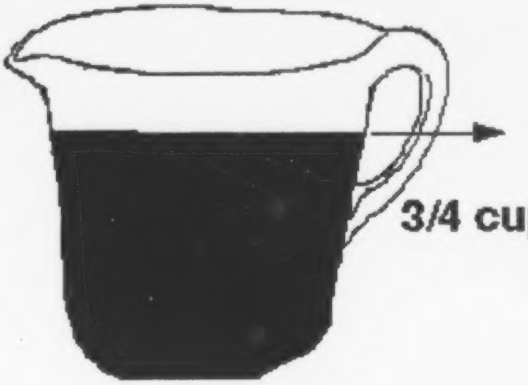




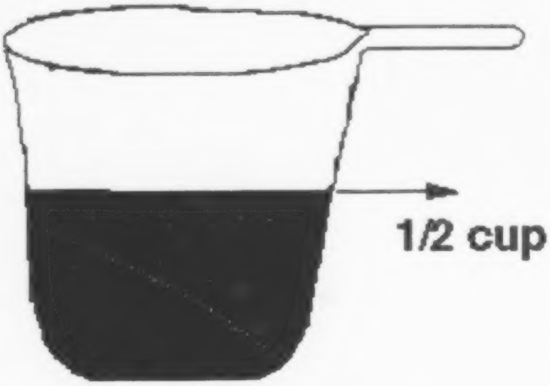




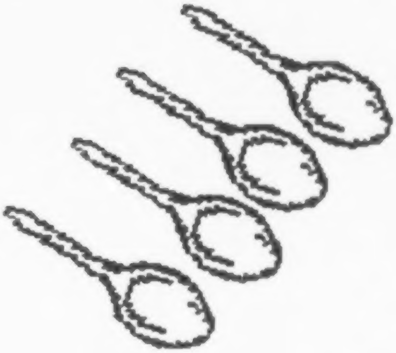
1 cup



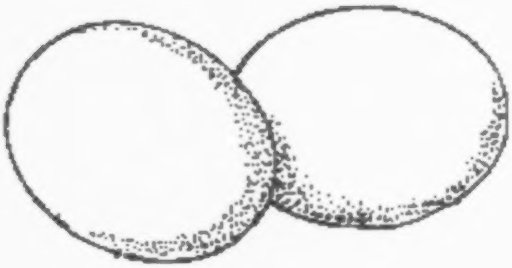
3/4 cup



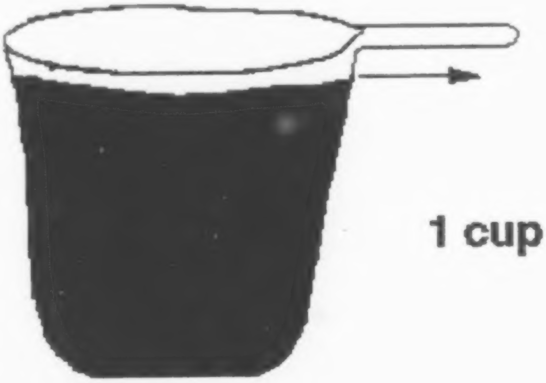
1/2 cup



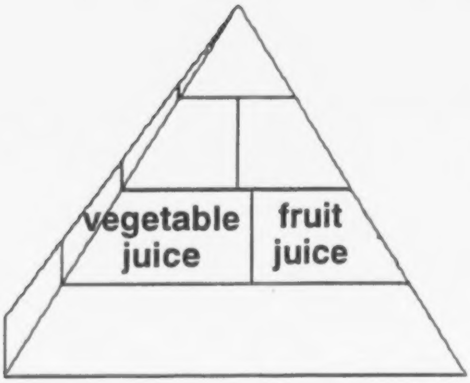
4 Tablespoons

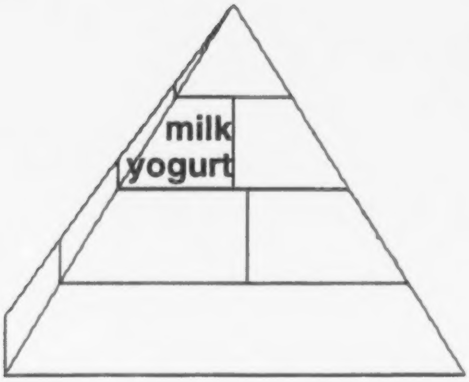


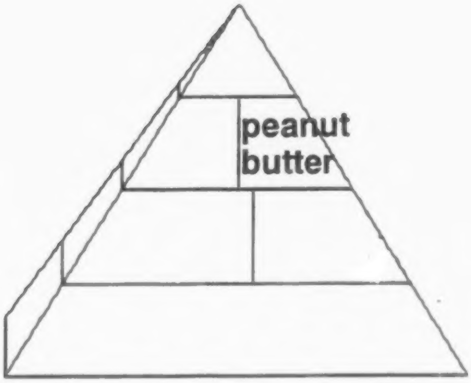
2 eggs

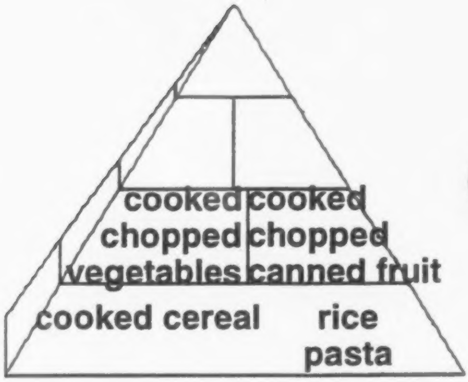


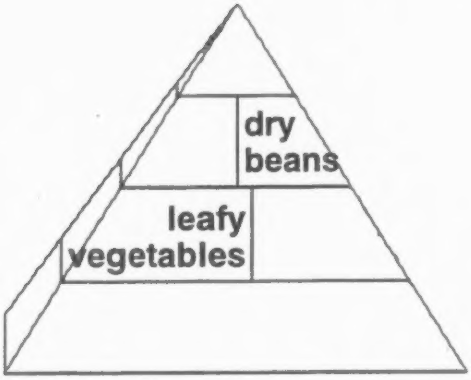
1 cup

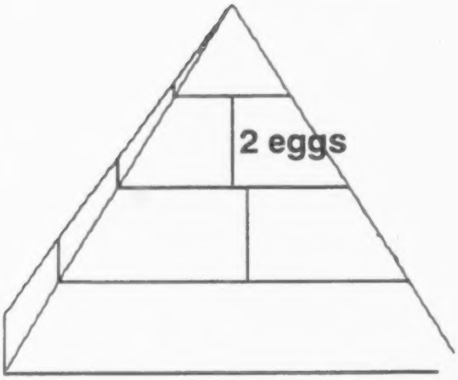

vegetable juice
fruit juice

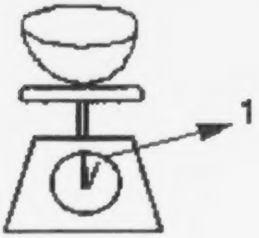

milk
yogurt


peanut
butter

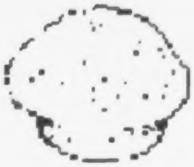

cooked chopped vegetables
cooked chopped canned fruit
cooked cereal
rice
pasta


dry
beans
leafy
vegetables

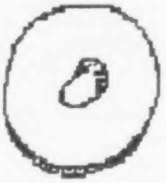

2 eggs



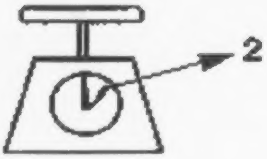
1 ounce



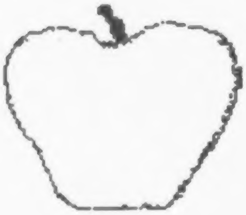
1 small



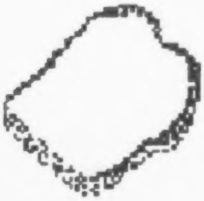
1/2 of a whole



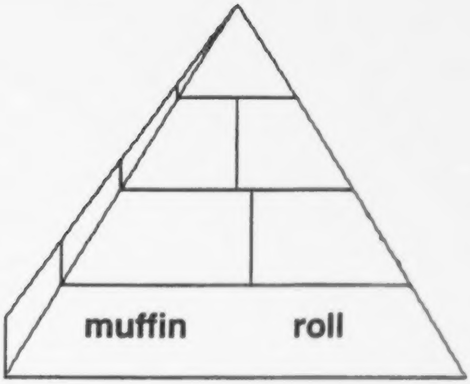
2 ounces

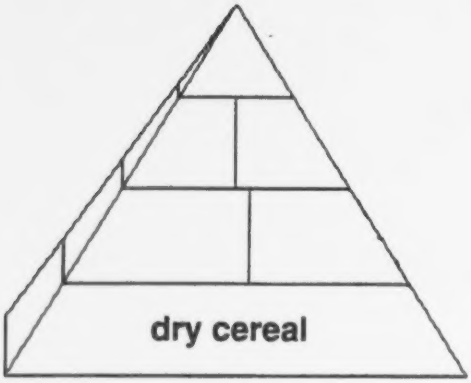


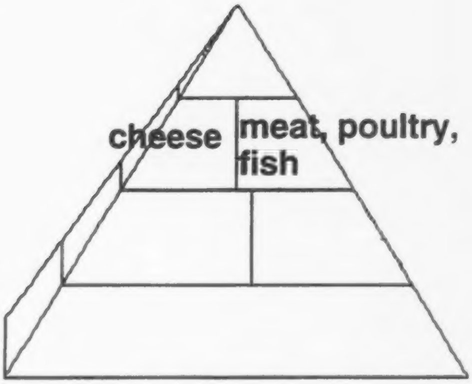
1 piece

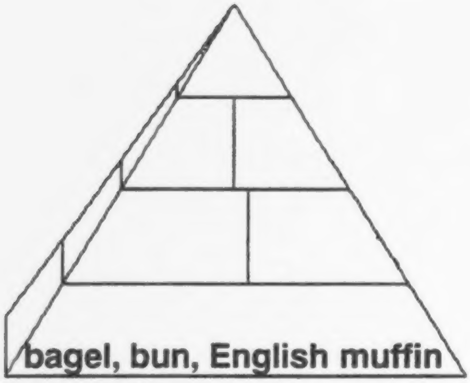


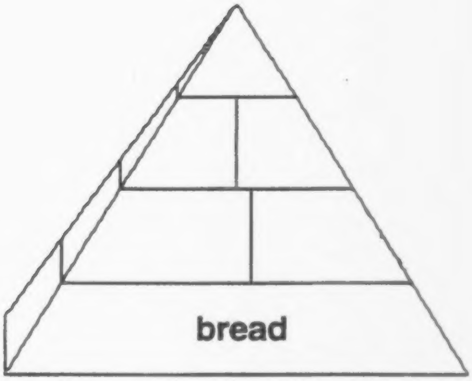
1 slice

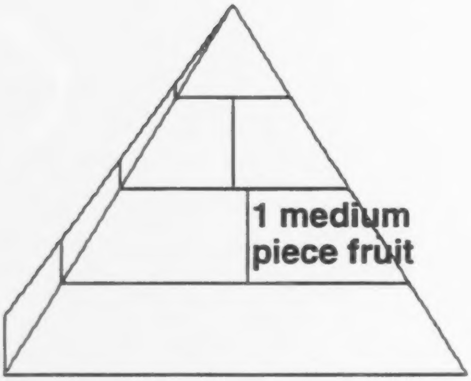

muffin
roll


dry cereal


cheese
meat, poultry, fish


bagel, bun, English muffin


bread


1 medium piece fruit

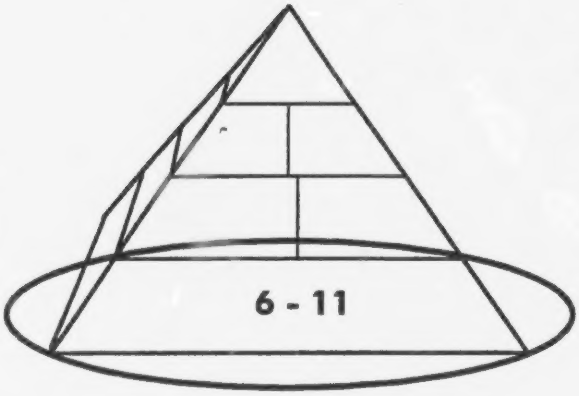
"PYRAMID POWER"
GRADES 2 & 3

APPENDIX B
FOOD GROUP LISTS

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

Bread, Cereal, Rice, and Pasta Group



angel food cake
bagel
barley
biscuit
bread crumbs
breadsticks
bread stuffing
brown rice
buckwheat groats
bulgur
cake
cake or sugar cone
caramel corn
cereal
cheese balls
cheese curls
chow mein noodles
cookies
corn bread
corn meal
corn muffin
corn tortilla
couscous
crackers
croissant
crouton
cupcake
Danish pastry
doughnut
egg noodles
English muffin
farina
flour tortilla
french bread
fried corn chips
fried rice
graham cracker
granola
grits
hamburger bun
hot dog bun
Italian bread
matzo
melba toast
muffin
noodles
oatmeal
pancake
pasta
pie shell
pita bread
pizza crust
popcorn
pretzel
pumpernickel bread
ready-to-eat cereal
rice
rice cake
roll
rotini
rye bread
rye wafer
spaghetti
stuffing
taco shell
toaster pastry
Vienna bread
waffle
white bread
whole wheat bread
Yorkshire pudding

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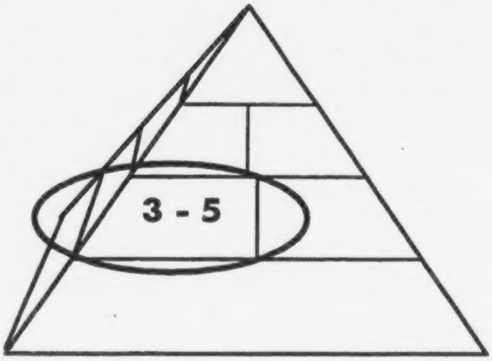
Funded by a grant from USDA, NET Program.

Vegetable Group



alfalfa sprouts
artichoke
asparagus
bamboo shoots
beet greens
beets
bell pepper
broccoli
Brussels sprouts
cabbage
carrots
cauliflower
celery
chicory
coleslaw
collards
corn
cucumber
dandelion greens
eggplant
endive
escarole
french fries
green beans
green peas
green pepper
hominy
iceberg lettuce
Jerusalem artichoke
kale
kelp
kohlrabi
leaf lettuce
lima beans
lotus root
lupine
mushroom
mustard greens
okra
onion
parsnips
pickles
poi
potato chips
potatoes
pumpkin
purslane
radicchio
radish
romaine lettuce
rutabaga
sauerkraut
seaweed
spinach
squash
succotash
sweet potato
Swiss chard
taro
tomatoes
turnip greens
turnips
vegetable juice
vegetable soup
vinespinach
water chestnuts
watercress
wax beans
wax gourd
yam
zucchini

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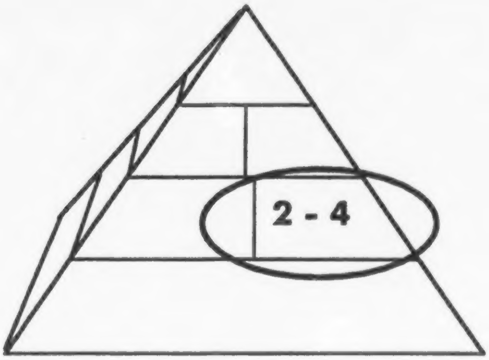
Funded by a grant from USDA, NET Program.

Fruit Group



- acerola
- apples
- applesauce
- apricot
- avocado
- banana
- banana chips
- blackberries
- blueberries
- boysenberries
- breadfruit
- cantaloupe
- carambola
- carissa
- casaba melon
- cherimoya
- cherries
- cider
- crabapples
- cranberries
- cranberry sauce
- currants
- dates
- elderberries
- figs
- fruit cocktail
- fruit juice
- fruit leathers
- gooseberries
- grapefruit
- grapes
- groundberries
- guava
- honeydew melon
- jackfruit
- java plum
- jicama
- jujube
- kiwifruit
- kumquat
- lemon
- lime
- loganberries
- longans
- lychees
- mammy apples
- mandarin oranges
- mangos
- melons
- mulberries
- nectarines
- oheloberries
- olives
- oranges
- papaya
- passion fruit
- paw paw
- peaches
- pear
- persimmon
- pie filling
- pineapple
- pitanga
- plantain
- plums
- pomegranate
- prickly pear
- prune
- pummelo
- quince
- raisins
- raspberries
- rhubarb
- rose apple
- roselle
- sapodilla
- sapote
- sowsop
- strawberries
- sugar apple
- tamarind
- tangerines
- ugli fruit
- watermelon

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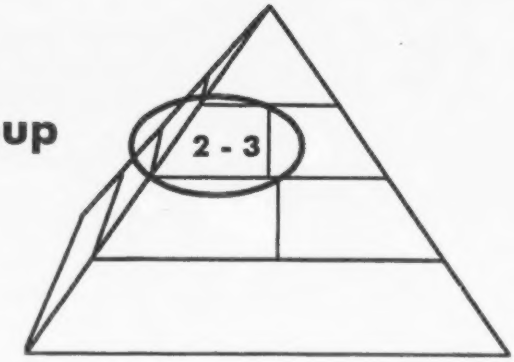
Milk, Yogurt, & Cheese Group



- acidophilus milk
- blue cheese
- brick cheese
- Brie cheese
- calcimilk
- Camembert cheese
- caraway cheese
- Cheddar cheese
- cheese imitations/substitutes
- cheese sauce
- cheese spread
- cheshire cheese
- chocolate milk
- cocoa/hot chocolate
- Colby cheese
- condensed milk
- cottage cheese
- custard
- dry milk
- Edam cheese
- evaporated milk
- evaporated skim milk
- farmer cheese
- feta cheese
- filled milk
- Fontina cheese
- gjetost cheese
- goat's milk
- Gouda cheese
- Gruyere cheese
- havarti cheese
- ice cream
- ice milk
- Indian buffalo milk
- lactose-reduced milk
- Limburger cheese
- lowfat (1% or 2%) chocolate milk
- lowfat buttermilk
- lowfat cottage cheese
- lowfat (1%) milk
- lowfat (2%) milk
- lowfat frozen yogurt
- lowfat fruited yogurt
- lowfat yogurt
- malted milk
- meunster cheese
- milk shake
- Monterey Jack cheese
- Mozzarella cheese
- Neufchatel cheese
- nonfat frozen yogurt
- nonfat fruited yogurt
- nonfat yogurt
- Parmesan cheese
- Port du Salut cheese
- processed cheese
- provolone cheese
- pudding
- rice pudding
- ricotta cheese
- Romano cheese
- Roquefort cheese
- sheep's milk
- skim buttermilk
- skim milk
- soy milk
- Swiss cheese
- tapioca pudding
- Tilsit cheese
- whole fat frozen yogurt
- whole fat fruited yogurt
- whole fat yogurt
- whole milk

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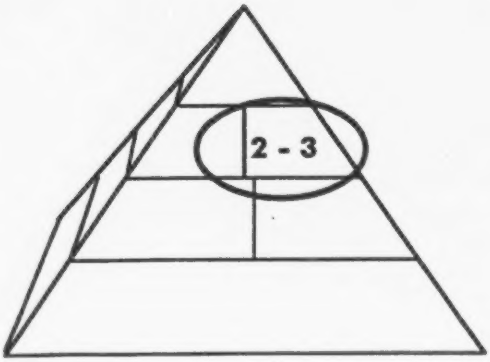
Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts Group



Meat, Poultry, Fish and Eggs

- beef
- Canadian bacon
- chicken
- chicken franks
- corned beef
- Cornish hen
- dried chipped beef
- duck
- egg
- egg substitute
- egg white
- egg yolk
- fresh, frozen, and canned fish and shellfish
- goose
- ground meat
- ham
- heart
- hot dogs
- kidney
- lamb
- liver
- luncheon meats
- pheasant
- pork chops
- pork loin
- pork roast
- pork tenderloin
- pot roast
- quail
- rabbit
- sausage
- spareribs
- squab (pigeon)
- squirrel
- steak
- sweetbreads
- turkey
- turkey franks
- veal
- venison

Dry Beans and Nuts

- bean dip
- black-eyed peas
- chickpeas
- coconut
- kidney beans
- lentils
- mung beans
- navy beans
- northern beans
- nuts
- peanut butter
- pinto beans
- refried beans
- seeds
- soybeans
- split peas
- tofu

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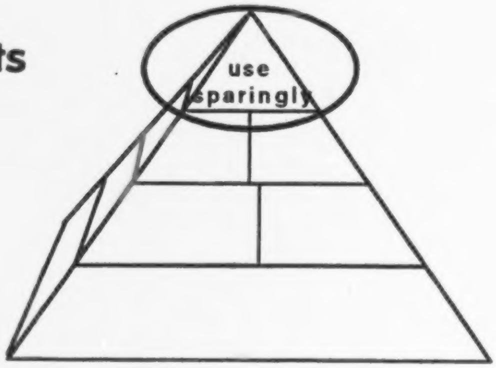
Fats, Oils, and Sweets Group



apple butter ▼
bacon ●
bacon bits ●
butter ●
candy ▼
caramel ▼●
chocolate bar ▼●
corn syrup ▼
cream ●
cream cheese ●
frosting ▼●
fruit drinks/ades/punches ▼
fruit sorbet ▼
fudge ▼●
gelatin dessert ▼
honey ▼
jam ▼
jelly ▼
lard ●
margarine ●
marmalade ▼
marshmallows ▼
mayonnaise ●
molasses ▼
popsicles ▼
pork rinds ●
salad dressing ●
sherbet ▼
shortening ●
soft drinks ▼
sour cream ●
sugar ▼
syrups ▼
vegetable oil ●
whipping cream ●

Foods with a ● symbol are high in fat.
Foods with a ▼ symbol are high in added sugar.

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KINDERGARTEN TO GRADE 6

RESOURCE LIST

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

RESOURCE LIST

CHILDREN'S BOOKS

Amazing Potato Book, The by Paulette Bourgeois
This has fun projects for home or school, all of which focus around the potato. Games and activities are just part of this book. Excellent background material is presented for storytelling.

Blue Potatoes, Orange Tomatoes by Rosalind Creasy
Describes how to plant and grow a variety of colorful vegetables, including red corn, yellow watermelons, and multicolored radishes.
Appropriate for grades 4-6.

Book of Vegetables, A by Harriet L. Sobol
The photographs show vegetables in the garden. The text is written simply and in large print. Fourteen vegetables are presented. Tomato, beans, cucumbers, peppers, and zucchini are listed as vegetables, not fruit. This might be a nice book to introduce the seed definition and some common discrepancies.

Bread, Bread, Bread by Ann Morris
Clear photographs show bread from all over the world, and the people who make and eat it.

Carrot Seed, The by Ruth Krauss
This book is old but and still enjoyed by children. It depicts the determination of a young boy who believes his carrot seed will grow into carrots despite what his family members say. The carrot does finally grow.

Cloudy With a Chance of Meatballs by Judi Barrett
The town of Chewandswallow, with food dropping from the sky like rain, was peaceful until giant meatballs and a tomato tornado forced the people to flee. Students, grades 2 and 3 will enjoy this exciting adventure.

Danilo the Fruit Man by Amy Valens
Danilo, a fruit-seller in Sicily, leads a peaceful and contented life until he finds unusual trees with magical fruit. This vividly told story will have students imaginations, from kindergarten through third grade, flying!

Day the Teacher Went Bananas, The by James Howe
Your students will enjoy the humor of the mix-up between a gorilla who goes to school, and a teacher who goes to the zoo.

Eating Fractions by Bruce Mcmillan
Food is cut into halves, thirds and quarters to illustrate how parts make a whole.
Appropriate for grades K-1.

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1993; Revised 1996.

Funded by a grant from USDA, NET Program.

Eating the Alphabet: Fruits and Vegetables from A to Z
by Lois Ehlert
Apple to Zucchini fruits and vegetables are illustrated to display a visually pleasing variety of colorful food choices. Unusual fruits and vegetables like jicama, kumquat, kohlrabi, okra, and radicchio are illustrated.

Edible Pyramid Good Eating Every Day, The by Loreen Leedy
Come into The Edible Pyramid, a restaurant that serves all kinds of delicious and nutritious meals, all based on the Food Guide Pyramid. Customers learn how many servings from the different food groups to have every day. Grades K-3.

Everybody Cooks Rice by Norah Dooley
A mother sends her daughter out to find her younger brother and bring him home for dinner. She discovers everyone in their multiethnic neighborhood is cooking rice, in a variety of ways, for dinner. The range includes black-eyed peas and rice from Barbados, Puerto Rican rice cooked in turmeric, Vietnamese rice with nuoc cham, and creole style Haitian rice with hot peppers.

Fiber by Jane Inglis
Identifies what dietary fiber is and discusses its importance and its sources. Includes recipes and related activities. Teachers may incorporate this information into lessons for grades 4-6.

Freddie's Spaghetti by Charlotte Doyle
Appropriate for students grades 1 and 2, this "dinner" story focuses on dining and the art of patience.

Fruit and Vegetable Man, A by Roni Schotter
Sun Ho first watches the artistic fruit and vegetable man, Ruby Rubenstein, at work. Soon, Sun Ho begins helping Ruby in the store and offers something new: bean sprouts. This is a colorful story for grades 2 and 3.

Fun With Fruits and Vegetables (Dole Food Company, Inc., see Teacher Resources)
This cookbook for kids illustrates great activities that incorporate fruits and vegetables into a child's diet. Students of all ages will enjoy the "cooking experiments" in this book.

Garden Alphabet, A by Isabel Wilner
A colorful alphabet book that contains rhymes about gardening. The print is large and clear.

Germs make Me Sick , Let's-Read-and-Find-Out-Science Book.
This story explains how bacteria and viruses effect the human body and how our bodies fight against them.

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Growing Vegetable Soup by Lois Ehlert
A colorful book that introduces the tools, seeds, water, and sunshine necessary to grow a vegetable garden. The vegetables grow and are used to prepare soup.

Happy Veggies by Oda Mayumi
This brief story celebrates the growth of vegetables in a garden through the flowing brush stroke paintings of an internationally renowned artist.

How a Seed Grows by Helen J. Jordan
Uses observations of bean seeds planted in eggshells to demonstrate the growth of seeds into plants.

How do Apples Grow? by Betsy Maestro
Describes the life cycle of an apple from its initial appearance as a spring bud to that point in time when it becomes a fully ripe fruit.

Jamberry by Bruce Degen
This is a factual story in rhyme of a boy and a bear that have delicious adventures in the magical world of berryland. You may find it fun to finish up the reading with a discussion of how to make jam and jelly out of berries. The Jamberry audio tape, available through Scholastic, Inc., is a fun addition to any audio library.

Milk from Cow to Carton by Aliki
Briefly describes how a cow produces milk, how the milk is processed in a dairy, and the way various other dairy products are made from milk.

Milk Makers, The by Gail Gibbons
Explains how cows produce milk and how it is processed before being delivered to stores.

More Spaghetti I Say by Rita Goldman Gelman
The monkey in this rhymed story is too busy eating spaghetti to play with her friend Freddie. Story is for beginning level readers.

Pasta Factory by Hana Machotka
Photographs and text give the account of a class taking a trip through the Tutta Pasta Factory in New Jersey. Names of pasta shapes are explained, and the processing of pasta is described.

Pierrot's ABC Garden by Anita Lobel
Pierrot brings his friend vegetables, fruits and other items from A - Z. Grades K - 2.

Pizzas & Punk Potatoes by Arielle Rosin
Interesting background on foods with recipes and clever presentation ideas (e.g., pizza in the shape of stars, apples as fruit baskets, etc.). Chapters are short and address eggs, pizzas, potatoes, apples, crepes and milkshakes.

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Proteins by Jane Inglis
Describes the different kinds of proteins, where they are found, and their importance to human growth and nutrition. Includes activities and recipes. Grades 4-6.

Stone Soup by John Stewig
A clever lad (old soldier) in need of a meal shows villagers how to make a meal with a stone. This story has been re-written by various authors, each adding his or her own twist.

Vegetable Garden by Douglas Florian
This is a simple word book for the early reader. The use of rhyme is effective and the planting of the garden allows for easy curriculum integration. This is a great book to read at harvest time.

Vegetable Show, The by Laurene Krasny Brown
Presents information about nutrition and vegetables, by means of pictures of singing, dancing vegetable characters.

Vegetables Go To Bed, The by Christopher King
The tomatoes, carrots, spinach plants, and other vegetables in the garden prepare to go to bed, each in its own fashion. A good story to include when students are learning about gardening.

Very Hungry Caterpillar, The by Eric Carle
The story illustrates how a caterpillar grows big and prepares to become a butterfly. This concept helps to clarify how food is needed to build young bodies. This story may lead to a discussion of how food fuels the growth of living things.

Victory Garden Kids' Book: A Beginner's Guide to Growing Vegetables, Fruits, and Flowers, The by Marjorie Waters
This book will inspire you and your school to start and keep a vegetable garden.

Your First Garden Book by Marc Brown
This book suggests projects for beginning gardeners on how to sprout seeds, turn soil, plant and care for the growth of plants.

TEACHER REFERENCES

Bowes & Church's Food Values of Portions Commonly Used
Sixteenth Edition, by Jean A.T. Pennington
This book supplies data on the nutritional values of foods in a format that facilitates quick and easy reference.

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Fast Food Facts by Marion J. Franz
This book, produced by the International Diabetes Center, gives an extensive evaluation of fast food restaurants and food products and how they fit into a healthy lifestyle. Cost of the book is $6.95 and may be available at your local bookstore. (ISBN 0-937721-67-0) For more information, write to DCI Publishing, P.O. Box 739, Wayzata, MN 55391.

Fast Food Guide by the Center for Science in the Public Interest
This book provides a listing of products' nutritional values from popular fast food restaurants. Foods are broken down and analyzed for nutrient content. Cost of the book is $7.95. For information, call (202)332-9110 or check your local bookstore.

Games and Great Ideas
A Guide for Elementary School Physical Educators and Classroom Teachers, edited by Rhonda L. Clements. An excellent resource for getting children to move, the table of contents includes: Theoretical Considerations for Teaching Games, An interdisciplinary Approach to Games, Games Reflecting Different Cultures, Developmentally Appropriate Behavior through Games, and Fitness and Leisure through Games and Sport.

How to Teach Nutrition to Kids by Connie Liakos Evers, M.S., R.D.
An integrated, creative approach to Nutrition Education for children, ages 6-10, this book is packed with nutrition education activities and strategies that are kid-tested and teacher-endorsed. Divided by subject, this resource effectively integrates nutrition into the classroom, cafeteria, and home environments.

Reviving Ophelia: Saving the Selves of Adolescent Girls by Mary Pipher
This vibrant and insightful account explores the everyday dangers of being young and female, including body image disturbances and eating disorders, and how adults can help.

Schoolgirls: Young Women, Self-Esteem, and the Confidence Gap by Peggy Orenstein
Based on her investigation of two American middle schools, journalist Peggy Orenstein reports on the problems facing young schoolgirls today. She finds that despite advances in women's roles, many American girls still experience low self-esteem and self-censorship.

Second Helpings-Books and Activities About Food by Jan Irving and Robin Curie
The FUN activities in this book, designed for primary through middle school students, are generated around the topic of food. This book, intended as a resource book for educators, provides a listing of books focused around various themes, divided into eight chapters. Each chapter contains an introduction to the theme, a focus book, activities that relate to the focus book, a readers theatre script, activities related to the chapter topic, a starter kit, and recipes.

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Funded by a grant from USDA, NET Program.

TEACHER RESOURCES

COMPUTER SOFTWARE

5-A-Day Adventures

Dole Food Company, Inc
Nutrition Program
155 Bovet, Suite 476
San Mateo, CA 94402
1-800-766-7201
Fax: (415) 570-5250

Use school letterhead to write or fax a request for a free copy of this program. The interactive, multimedia program includes a Fun with Fruits and Vegetables Cookbook for Kids, fruit and vegetable stickers, and a chart for tracking fruit and vegetable consumption. Include your school's name, address, phone number, teacher's name making the request. Up to 25 copies, free of charge, allowed. Both IBM and Macintosh compatible.

Sugar Science: Photosynthesis to Food

The Sugar Association, Inc.
1101 15th Street, N.W., Suite 600
Washington, DC 20005
(202)785-1122
Fax: (202)785-5019
Cost: $39.95

This curriculum is an effective teaching tool due to the computer software package which explains the processes of photosynthesis and respiration as well as the role of plants in the food chain. This interactive program, accompanied by a manual, gives students, grades 6-9, the opportunity to form hypotheses, investigate, and conduct experiments. The students work with experimental variables and see how products are affected through different variables.

CURRICULA

All About Apples

This educational packet is available at a cost of $9.50 from Unique Country Products. For more information, contact (413)572-0397.

Delicious Decisions: Food Choices to Grow on!

Dairy Council of Wisconsin
999 Oakmont Plaza Dr, Suite 510
Westmont, IL 60559
1-800-325-9121

Integrated nutrition education for K-6. Includes the Food Guide Pyramid, a set of food picture card photographs, educator's guide, lesson plans, blackline masters, and a **poster of the Food Guide Pyramid**. Cost is $14.50 plus S&H per set and $1.25 plus S&H for the poster.

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Glo-Germ Science Kit

This science kit helps children visualize "germs on hands." The kit includes various activities that include the use of a special spray or powder and a UV light to illuminate microbes. For information, contact: Brevis Corporation, 1-800-383-3377.

Healthy Choices for Kids

The Growers of Washington State Apples
c/o Healthy Choices for Kids
Nutrition and activity Education Program
P.O. Box 550
Wenatchee, Washington 98807-0550
(509) 663-9600
Fax: (509) 662-5824

This program consists of four chapters, each focusing on one or more of the dietary guidelines. The curricula supports the "5 A Day-for Better Health!" campaign and the USDA's Food Guide Pyramid.

Mid-LINC
Middle Level Interdisciplinary Curriculum

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870 Cost:$98.00 plus $8.00 S&H

Contact the Penn State Nutrition Center for ordering details.

Three units are included in this interdisciplinary curriculum: Prehistoric vs. Modern Diet, Growing to the Max, and Food-Environment Connection.

Pyramid Packet

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870

Packet contains transparencies, reference sheets, brochures, a poster, food cards, and teaching tips for the pyramid, especially for the hard to place foods and sparingly foods.
Cost is $25.00 plus $4.00 S&H
PA residents must send tax exemption or add 6% sales tax.

PUBLICATIONS

Nutrition Accuracy in Popular Magazines (1992-1994)

A Special Report published by The American Council on Science and Health, this publication lists various popular magazines and evaluates the accuracy of the nutritional information presented. Individual copies are available at a cost of $3.85. Reduced prices for 10 or more copies are also available. For ordering information, contact The

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American Council on Science and Health, 1995 Broadway, 2nd floor, New York, NY 10023-5860, (212)362-7044 or fax (212)362-4919.

FDA Consumer

Published by the FDA, this special report focuses on food labeling and how to interpret information provided on food labels. For ordering information, contact (301) 443-3220.

Gimmie 5 Kids' Tips

This brochure gives tips to parents on how to get children to eat more fruit and vegetables. Available free from: International Apple Institute, 6707 Old Dominion Drive, Suite 320, McLean, VA 22101 (703)443-8850

VIDEOS

E.A.G.A.H.B.E.D. (Eat a Good and Healthy Breakfast Every Day)

This entertaining yet educational video, targeted for first through fifth grade students, focuses on teaching children how breakfast helps them learn. Video is accompanied by a 12-page teacher manual. (See Dairy Council Group Resource listing for catalog ordering information.)

Janey Junkfood's Fresh Adventure

Foodplay
221 Pine Street
Northampton, MA
01060
1-800-FOODPLAY

Make Mine Milk produced by the Dairy Council (See Group Resources Listing)
This is a fast-paced, entertaining video that teaches elementary kids where milk comes from, how it is processed, and how it contributes to a nutritious diet. This 27 minute video was developed in eleven interdisciplinary segments and includes a leader guide.

CATALOGS

The Gürze 1996 Eating Disorders Bookshelf Catalog

Gürze Books
P.O. Box 2238
Carlsbad, CA 92018
1-800-756-7533
This catalog displays a variety of materials related to eating disorders.

Lowfat Lifeline- Health Education Resources Catalog

Valerie Parker, M.S.
P.O. Box 1889
Port Townsend, WA 98368
360-379-9724
Fax 360-385-6835

Produced by the Penn State Nutrition Department for the Pennsylvania Department of Education, 1993; Revised 1996.

Funded by a grant from USDA, NET Program.

NASCO Nutrition Teaching Aids Catalog and **Nasco Science Catalog**
901 Janesville Avenue
P.O. Box 901
Fort Atkinson, WI 53538-0901
1-800-558-9595
Fax 414-563-8296
A comprehensive catalog featuring teaching aids for hands on learning.

Nutrition Counseling and Education Services (NCES)
1904 E. 123rd St.
Olathe, KS 66061
1-800-445-5653
This catalog displays a variety of nutrition education materials.

The Pennsylvania State Nutrition Center Catalog of Nutrition Education Materials
Provides a listing of materials developed by the Nutrition Center. Materials range from educational brochures to extensive curriculum packets. For a free catalog, contact: The Penn State Nutrition Center, 5 Henderson Building, University Park, PA 16802. (814) 865-6323

OTHER

Guide to Good Eating
your local Dairy Council or
Order Department
National Dairy Council
10255 W. Higgins Rd, Suite 900
Rosemont, IL 60018-5616
Miniature poster of the five food groups is available for $1.25, plus S&H poster- $3.00, plus S&H

GROUP RESOURCES

Many of these organizations provide Food Guide Pyramid posters.

Consumer Information Center
Department 159-Y
Pueblo, CO 81009
Ask for the Consumer Information Catalog, a catalog of free and low cost federal publications of consumer interest. There are useful **Food Guide Pyramid** resources available, including large **posters** and booklets.

Florida Department of Citrus
PO Box 148
Lakeland, FL 33802
(941) 499-2500
The Florida Department of Citrus has a wide variety of nutrition education materials including **Food Guide Pyramid posters**. Grades K-12. Send for a free catalog of their products.

National Dairy Council
10255 West Higgins Road, Suite 900
Rosemont, IL 60018-4233
(708) 803-2000, ext. 220
The National Dairy Council provides a **Daily Food Guide Pyramid poster** for $3.00 as well as a free catalog of their nutrition education materials. Contact your state Dairy Council or Associated Milk Producers Office for other resources.

National Cattleman's Beef Association
Education Department
444 N. Michigan Avenue
Chicago, IL 60611
Use school letterhead to request a catalogue which lists a wide variety of elementary curriculum kits, many free of charge.
Food Guide Pyramid poster (1.50)

Sunkist Growers, Inc.
PO Box 7888
Van Nuys, CA 91409
(818) 986-4800
Sunkist Growers, Inc. offers free of charge the "Orbiting Oranges Kit." Included is one "Orbiting Oranges" poster, teacher information and 25 activity books. Grades 3-6. This kit supports the "5 A Day - for Better Health!" campaign.

USA Rice Council
P.O. Box 22802
Houston, TX 77027
(713)270-6699
Contact this organization for various activities appropriate for elementary students. The following activity is provided, free of charge: "Teaching With Rice the Fun Way."

Washington State Dairy Council
4201-198th Street, SW Suite 102
Lynnwood, WA 98036
They offer bright, colorful stickers of the Food Guide Pyramid (English or Spanish). $3.00 plus S&H per 100 stickers. For more information or a catalog call: 206-744-1616 (Toll Free Fax-1-800-470-1222)

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GARDENING

Children's Seed Program
Brooklyn Botanic Garden
1000 Washington Avenue
Brooklyn, NY 1122501099
The program offers reasonably priced seeds and gardening supplies for children and beginning gardeners.

Growlab
National Gardening Association
180 Flynn Avenue
Burlington, VT 05401
1-800-538-7476
A comprehensive, science curriculum for K-8, including indoor garden equipment, books, posters, videos, and curricula.

Let's Get Growing!
1900 Commercial Way
Santa Cruz, CA 95065
Curricula, kits, and garden-based science supplies are available through this catalog.

GAMES

Pyramid Power
Cooperative Extension in Lancaster County
444 Cherrycreek Road
Lincoln, NE 68528-1507
This is a nutrition game that resembles bingo. It reinforces information illustrated in the Food Guide Pyramid.

Harvest Time
Harvest Time is a board game for children ages four to seven. The object is to try to pick all the vegetables. The cost is $17.00. For more information, contact Animal Town, PO Box 485, Healdsburg, CA 95448, 1-800-445-8642.

KINDERGARTEN TO GRADE 6

INDEX

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

INDEX

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- II. Food Guide Pyramid
- III. Food and Nutrients
- IV. Health Promotion

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Lessons 11-22 are found in unit 2-3
Lessons 23-35 are found in unit 4-6

An (X) next to the lesson number number denotes an extension of that lesson.

I. Academic Subject Areas

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- Concept mapping
  - Sugar Factory, The Lesson 24
- Dictionary Skills
  - F.O.S. Fats, Oils, Sweets Lesson 20
  - Sparingly Lesson 29
- Finger plays, rhymes, and storytelling
  - Good-bye, Dirt and Germs! Lesson 1
  - Handy Rule, A Lesson 2
  - Ms. Spaghetti Sauce, Let's Look at Your Life Lesson 8
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  - Headline News Energizes the U.S. Food Guide Pyramid Introduced Lesson 23
  - EVERYBody A GREAT Body Lesson 35
  - Sugar Factory, The Lesson 24
- Mnemonic strategy
  - My Pet Fish Drives Everyone Nuts Lesson 18
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- Writing skills
  - -Be Adventurous! Lesson 15
  - -Cake Baking Experiment, The Lesson 31
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  - -EVERYBody A GREAT Body Lesson 35
  - -F.O.S. Fats, Oils, Sweets Lesson 20
  - -Grubbing for Grains Lesson 14(X)
  - -My Pet Fish Drives Everyone Nuts Lesson 18
  - -Mystery Fruit Forms Lesson 6(X)
  - -Sparingly Lesson 29
  - -Thirst Quenchers Lesson 19(X)

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  - -Food Guide Pyramid - Sorting Mat Lesson 22
  - -Matching and Graphing Vegetables and Fruits Lesson 9
  - -Pyramid Puzzle! Lesson 11
- Basic concepts of algebra, geometry, and probability & statistics
  - -Building Pyramids Lesson 12
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  - -Cake Baking Experiment, The Lesson 31
  - -Calculating Calories Lesson 27
  - -Pyramid Power Lesson 32
  - -Sparingly Lesson 29(X)
  - -Where's the Fat? Lesson 30
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  - -Grubbing for Grains Lesson 14
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- Greater than, less than, equal to
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- Maximum, minimum, range, midpoint,
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- Number combinations using manipulatives
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- Computer technology
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- Different forms of food
  - -Grubbing for Grains Lesson 14(X)
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  - -Milk Mysteries Lesson 17
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  - -Fabulous Fiber Lesson 5
  - -Sugar Factory, The Lesson 24(X)
- Exploring the senses
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  - -EVERYBody A GREAT Body Lesson 35
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- Photosynthesis
  - -Pennsylvania's Energy Contributions Lesson 25(X)
  - -Sugar Factory, The Lesson 24
- Water as an essential nutrient
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"ENERGY CHOICES"
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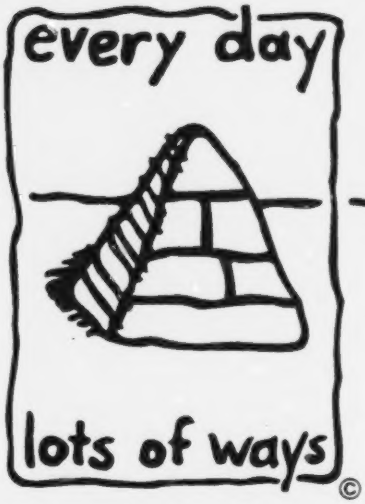

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

For more information on this curriculum write or call:

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every day lots of ways©

An Interdisciplinary Nutrition Curriculum for Kindergarten - Sixth Grade

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Lesson	Title and Curriculum Connection	Nutrition Overview
1	Good-bye, Dirt and Germs! (Health)	It is important that young children learn and practice habits that are beneficial to their health. In this lesson, students will learn the importance of washing hands and fresh vegetables and fruits prior to consumption.
2	A Handy Rule (Language Arts)	"Five a Day" is an important guide for healthful eating. As students learn this "handy rule" they will be introduced to vegetables and fruits as sources of vitamins A and C, as well as fiber.
3	Winning Combinations (Mathematics)	The "Five a Day - For Better Health" national campaign encourages Americans to consume at least five vegetables and fruits a day. The recommended combination of five is three vegetables and two fruits.
4	They Start a Garden (Language Arts/Science)	Vegetables are an important food group for good health but may not rank among students' favorite foods. Growing vegetables, however, might increase students' interest in this part of their diet.
5	Fabulous Fiber (Science)	Most adults know fiber is in foods, but seldom do we consider its "fabulous" health benefits. Students will observe fiber in plant parts and become familiar with some "fabulous" fiber foods.
6	Mystery Fruit Forms (Science)	Children are encouraged to eat a minimum of two servings of fruit a day. Fortunately, there are many ways to reach this goal because fruit comes in a variety of forms.

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Lesson	Title and Curriculum Connection	Nutrition Overview
7	Ripe and Ready to Eat! (Science)	Students will learn the difference between underripe, ripe, and overripe fruits. They will determine that fruits should be ripe when eaten.
8	Ms. Spaghetti Sauce, Let's Look at Your Life (Social Studies)	It is important for consumers of all ages to understand that foods we eat may go through many processes before they get to our table. Great costs are involved in transporting fresh foods from coast to coast. High costs may influence our food choices more than we think.
9	Matching and Graphing Vegetables and Fruits (Language Arts)	Once a food has been processed, it can be difficult to trace it back to its original form. Students may be better able to meet their "5 A Day" if they understand that processed vegetables and fruits also count.
10	A to Z is Good For ________! (Language Arts)	The alphabet can be used as a tool to illustrate the variety of vegetables and fruits. Vegetables and fruits can be named for almost all of the letters in the alphabet.
11	Pyramid Puzzle (Health/Mathematics)	The Food Guide Pyramid was designed as a guide to daily food choices for all Americans. It is important to understand that all the groups in the Food Guide Pyramid are essential for good health.
12	Building Pyramids (Mathematics/Art)	It is important to distinguish between the base and the top of the Food Guide Pyramid. The differences in shape and size are associated with the recommended servings of each food group. Students will realize that the base of any pyramid, especially the Food Guide Pyramid, is its foundation.

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Lesson	Title and Curriculum Connection	Nutrition Overview
13	From Farm to Food (Social Studies)	By the time food reaches our kitchens, many products bear little resemblance to their original form. Students will trace a processed food product back to an original source to re-establish that connection and understand its placement in the Food Guide Pyramid.
14	Grubbing for Grains (Language Arts/Science)	Grubbing for grains may sound messy but it isn't. Students will not sift through grains, but they will sift through information on product food labels to identify the grain used in the production of the food item.
15	Be Adventurous (Language Arts)	Children typically enjoy fruits more than vegetables. However, by discovering the wide variety of vegetables and different preparation methods, children may increase their vegetable consumption.
16	Is it Fruit? (Language Arts/Mathematics)	Some manufacturers recognize the appeal of the word "fruit" to sell a product. Through closer inspection of the product through the label information, the students will determine whether the item should be categorized as a fruit.
17	Milk Mysteries (Science)	Many people place all dairy products in the Milk, Yogurt, and Cheese food group. However, some of these products belong in the tip of the pyramid because they are primarily made from cream, and/or they do not have a high enough calcium content.

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Lesson	Title and Curriculum Connection	Nutrition Overview
18	My Pet Fish Drives Everyone Nuts (Language Arts)	The Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts group has a diverse number of food origins. Many children (and adults) forget all of the foods that go into this group. Using a mnemonic sentence can help all of us remember them.
19	Thirst Quenchers (Health)	There are a variety of beverage choices in the Food Guide Pyramid. Because of the differing nutrient contents of these drinks, some belong in the major food groups, whereas others belong in the tip of the pyramid.
20	F.O.S. (Language Arts)	Fats, oils, and sweets may be ingredients in some of the foods we enjoy, but when those ingredients appear first by weight on a food label, we should consume the food items sparingly. Students need to become comfortable applying the term "sparingly" to their own food choices.
21	Reach for the Stars! (Health/Mathematics)	The determination of food consumption is valuable when concerned about one's diet. Food records reveal important information regarding eating patterns and food consumption. It is important to determine how much of each food group is consumed in order to evaluate if nutrient needs have been met.
22	Sorting Mat (Mathematics/Health)	To be able to plan for healthy eating, it is important to categorize food items. Determination and acknowledgment of serving sizes of these foods is equally important.

Lesson	Title and Curriculum Connection	Nutrition Overview
23	Headline News Energizes the U.S. Food Guide Pyramid is Introduced (Lang.Arts/S.S./Health)	Many people do not view nutrition as "news." However, it is a subject we continue to learn about and new findings in nutrition are newsworthy events.
24	The Sugar Factory (Science/Art)	Photosynthesis, although not taught in depth, plays an important role in our food production.
25	Pennsylvania's Energy Contributions N.E.W.S. (North, East, West and South) (Social Studies)	The students will learn that some commonly consumed foods are locally grown or produced. Students will appreciate the role of their community in producing foods for healthy diets.
26	What are Calories? (Science)	Many Americans count calories everyday. In this lesson, students will learn that calories are a measure of energy. Prior to presenting this lesson to your class, do the experiment yourself to verify the results. (burning a peanut)
27	Calculating Calories (Mathematics)	Americans have started reading food labels to aid them in making informed choices. Students will learn how to read food labels and understand the information given.
28	Energy Bolts! (Health/Mathematics)	This activity will explore the recommended number of servings on the Food Guide Pyramid. The information will enable students to determine if they have met their daily requirements.
29	Sparingly (Language Arts/Health)	Many people enjoy foods that have little nutritional value. Although these foods need not be eliminated from the diet, the USDA encourages us to consume them sparingly.

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Lesson	Title and Curriculum Connection	Nutrition Overview
30	Where's the Fat? (Mathematics)	Within each food group, we have choices. Not all foods in each food group have the same nutrient composition. For example, foods that are processed can have a higher fat content than might be expected.
31	The Cake Baking Experiment (Science/Health)	The results of this cake testing experiment might surprise you! Offer students a glass of prune juice and they will decline. As a substitute for oil in cake mix, their taste buds may be tricked.
32	Pyramid Power (Mathematics)	There are calorie recommendations for different age levels. The nutrients that comprise those calories deserve careful consideration.
33	Energy Output Survey (Health/Physical Education)	We all know exercise is part of a healthy lifestyle. Tracking and evaluating energy output is the focus of this lesson.
34	On Your Own: Making Smart Energy Choices (Health/Mathematics)	Planning nutritious breakfasts and snacks can help all of us. In this lesson, students will gather nutrition information and make food choices based on this information.
35	EVERYBody A GREAT Body! (Health/Social Studies)	Students will learn that focusing on overall well-being and creative individuality is more healthful than trying to achieve the unrealistic "ideal" body that is often promoted by the media.

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"ENERGY CHOICES" THEMATIC UNIT
GRADES 4-6

UNIT SYMBOL DESCRIPTIONS

Nutrition Overview: Brief statement summarizing the nutrition message

Objectives: Teaching techniques used to communicate the material

Materials: List of the supplies needed to conduct the lesson

Information for Teachers: Background information about the topic

Steps to Follow: Lesson sequence step by step

Extensions: Springboards to enhance the lessons

ask Student Interaction: Prompt for teachers indicating that students are to be asked a question

ALLERGY CAUTION! Be mindful: Keep your list handy of students with food allergies when considering taste tests in the classroom

■ This symbol in the upper corner of each page signifies that the lesson is from the Fourth to Sixth Grade unit, "Energy Choices".

FOOD SERVICE AND NURSE EXTENSIONS

These extensions have been combined together in one section so that the Food Service Director and the School Nurse can plan in advance to visit the classroom at the time the lesson is taught. A list of activities for each of these extensions begins on page lxvii within this unit.

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GOAL/OBJECTIVE OF CURRICULUM UNIT

"Every Day Lots of Ways" integrates three units to illustrate various components of healthy eating. The first unit, K to 1, "5 A Day" emphasizes eating five fruits and vegetables a day. The second unit, grades 2 to 3, "Pyramid Power" teaches the Food Guide Pyramid, excluding the tip while unit three, "Energy Choices", grades 4 to 6, targets the tip.

"Energy Choices" is an interdisciplinary nutrition curriculum that uses core subjects to focus on energy needs and the energy nutrients in foods. The USDA's Food Guide Pyramid will be introduced as the guide for healthful eating. The children will have an opportunity to study each food group, the variety of choices within each group, and the relative amount of food to eat from each of the food groups. In a positive way, we hope students will try to eat more than half their food energy from carbohydrate-rich foods such as grains, vegetables, fruits, milk, and dry beans. The unit will also address fat and added sugars in our food supply.

"Energy Choices" is also about using energy through exercise. Healthy children should be encouraged to exercise. Just like healthy eating, physical fitness should become part of the students' daily routine.

Children live for today, but health-related diseases often take a lifetime to develop. This unit will address food habits that can lead to a healthier life, since we know the habits developed in childhood contribute to the outcome of a healthy or unhealthy body.

SCIENTIFIC CAUTION

"Every Day Lots of Ways" integrates various teaching techniques to reinforce concepts students learn. One way is through scientific experimentation. Safety should be a major consideration for both students and teachers. Prior to beginning any experiment, please discuss the issue of safety with your students and clarify what you expect of them. Explain to students that when safety guidelines are not adhered to, people may be harmed. Be prepared for the experiment, make sure all equipment and ingredients are labeled so that students are aware of what the substances are. Have boundaries drawn or clearly mark where students are and are not allowed to be. When working with any experimental substance, teachers and students should wear protective eye gear. Instruct students on the following: keep chemicals (and other substances) off clothes, if they come in contact with chemicals rinse with water, wipe up any spills immediately, and wash hands before and after each activity. Remind students that we never taste chemicals or inhale them. Check with your school's science coordinator and/or administrator about the use of chemicals and a flame in the classroom prior to conducting the experiments.

EXTENSIONS WITHIN EACH LESSON

Each lesson plan has a section entitled Extensions. The Extensions are springboards to enhance the lessons. They can be used to vary the lessons from one grade level to

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another. Therefore, you might find it helpful to meet with all the teachers as a team and decide what concepts will be introduced to which grade levels, etc. The Extensions offer you flexibility to create what works for you and your school. The following is an explanation of the Extensions.

Not all the extension topics are listed for each lesson. You may think of some new extensions to add. It is your ideas and flexible extensions that will enhance the concepts to make them relevant to the students. We encourage you to have fun and try one, some, or all of the extensions.

BULLETIN BOARD IDEAS

Here we give ideas to create bulletin boards that will enhance the unit. In the unit there may be an idea listed for each lesson; obviously this is not feasible. It is up to you to choose the bulletin board idea that will emphasize the concept you believe is important to you for this unit.

CAREERS

In this section we have simply named occupations which relate to concepts taught in the lesson. You may want to mention this to your students at the time of the lesson or use this information when you discuss community helpers or jobs that relate to our health and well-being.

CLASS PROJECT

Again, this is a springboard idea. You cannot do all the class projects; however, one may work better for one class or grade than another. This is a good opportunity to network between the teachers in your grade or primary team.

FOOD SERVICE COOPERATION

The food service is often referred to as the nutrition laboratory of the school. Food Service Directors can be a wealth of information and can help illustrate that the school lunch and breakfast programs are designed to enhance each student's health.

FURTHER INVESTIGATIONS

This extension allows you to link the subjects. When the students see how they all link together, it makes for a more meaningful learning experience.

INVITE THE NURSE

Many nurses enjoy the opportunity to visit the classroom and support the health programs. By using these ideas, you can come up with ways to include the nurse so the students recognize the contribution of the nurse to the school team.

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I THINK I CAN, I KNEW I COULD

This is the opportunity your students have to apply the nutrition concepts to their own lives. It is a time to assess behavior, set goals for small changes, assess successes or setbacks, and praise accomplishments. This can be very personal; you may want to do this individually vs. large group settings.

PEER HELP

This extension offers ways to involve the intermediate elementary students with the students in the primary grades. These extensions require coordination of activities among the primary and intermediate teachers.

TAKING IT HOME

This is a time to involve the family or at least one family member in the child's learning. Many teachers say nutrition starts at home. This section gives ideas for ways you can get the parents thinking about food choices and listening to and supporting what your students are learning in school.

TASTE TEST

This section could be somewhat costly, but a few bites of a food can communicate more than words. If you can afford it or the food service director can help out, try the taste test ideas.

RESOURCES

Books, videos and other resources intended to complement lessons. The list of books can be used to select a book for story time or in making new purchases for your library shelf. You'll want to be sure to share the list with your school librarian.

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MATERIALS LIST
UNIT 4-6

GENERAL MATERIALS USED IN THE LESSONS:

- Taste Test permission slip (completed prior to taste testing activities)
- colored pencils
- crayons
- dictionary
- glue
- markers
- paper
- pencil
- scissors
- string
- tape
- thesarus
- yarn
- Food Guide Pyramid Poster (to obtain, see Resource List)

WORKSHEETS SPECIFIC TO EACH LESSON:

Worksheets and answer keys where applicable are located at the end of each lesson.

LESSON 23, HEADLINE NEWS

- Food and Energy in the News worksheet
- large sheet of construction paper (one per student)
- Headline News Energizes the U.S. worksheet
  (reproduced as handouts or made into transparency master)
- Food Guide Pyramid poster displayed in room
- Food Guide Pyramid Model worksheets
- The Food Guide Pyramid Can Work for You worksheet
- local, regional or national newspapers* (one per student)

* Note: Newspapers can be brought in from home or donated by your local newspaper distribution center. Use papers that have a food, health or living sections. Many have established the weekdays of Monday, Tuesday or Wednesday for these sections.

LESSON 24, SUGAR FACTORY

- Food Energy Concept Map worksheet
- sheet of paper (one/group)
- sheet of oak tag

- green, blue, or white construction paper
- magazine pictures of food or food packages
- hole punch (optional)

LESSON 25, PA NEWS

- "Farm to Food" videotape (included with curriculum)
- Six Pennsylvania Production Maps (duplicated by teacher)
- Pennsylvania County Map

LESSON 26, WHAT ARE CALORIES?

- scrap of paper
- ring stand
- ring clamp
- thermometer (centigrade)
- large metal can (approximately 28 ounces))
- one liter of water (room temperature)
- needle
- cork
- aluminum foil
- peanut (fresh from the shell)
- matches (have ample supply)
- water

LESSON 27, COUNTING CALORIES

- food label - have each student bring back one milk carton from lunch
- sheet of paper (1 per student)
- Calculating Calories worksheet

LESSON 28, ENERGY BOLTS!

- Energy Bolts! worksheet
- school breakfast and lunch menus
- How Many Servings Do You Need Each Day? worksheet
- (Duplicate for Approach A or make a transparency master if used with Approach B.)
- Food Guide Pyramid poster
- Food Group Lists (appendix A)
- Pyramid Reference Sheet
- markers, crayons or colored pencils

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LESSON 29, SPARINGLY

- Eating Fats and Sweets Sparingly worksheet
- Sparingly Math worksheet

LESSON 30, WHERE'S THE FAT?

- Your Choice Can Make a Big Fat Difference worksheet
- food labels, from all the food groups, that show different amounts of added fat (For example: rice cakes, tortilla chips, cupcakes, and bread (represents the bread, cereal, rice, and pasta group).
- Food Guide Pyramid poster
- (optional) Vitamin C in Potatoes Worksheet

LESSON 31, THE CAKE BAKING EXPERIMENT

- 3 boxed chocolate flavored cake mixes (Select a brand and flavor that call for 1/3 cup oil to be added)
- 1/3 cup oil
- 1/3 cup applesauce
- 1/3 cup prune juice
- 9 eggs (3 per cake)
- 3 3/4 cups water (a 3/4 cup water for each of the 3 cakes)
- 3 cake pans (13"x9"x2" rectangular)
- paper towels (2 or 3 per student)
- non-stick vegetable cooking spray
- 3 large mixing bowls
- 3 large spoons for mixing
- knife for cutting the cakes
- 3 paper plates to put bitesize pieces of cake on
- Taste and Compare worksheet
- Math worksheet

LESSON 32, PYRAMID POWER

- Pyramid Power Book
- food scale that measures in grams or ounces (borrow from food service)
- measuring cups
- measuring spoons
- Food Diary worksheets
- Pyramid Power worksheet

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Lesson 33, Energy Expenditure

- It's Your Move! worksheet
- Ways to Move More worksheet
- Goal Keeper worksheet

Lesson 34, On Your Own

- nutrition information from popular fast food restaurants (may need to make photocopies)
- Breakfast - it's in the Bag worksheet
- Snack Attack worksheet
- Not So Fast - Making a Game Plan for Fast Food Dining worksheet
- (optional) Check it Out! worksheet

Lesson 35, EveryBODY a GREAT Body!

- Magazines, particularly popular magazines for young teenagers
- Newspapers

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LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
23	Decorate the cafeteria with the Food Guide Pyramid slogan posters suggested under "Class Projects." Show maps of the U.S. and make signs that indicate people in Georgia, California, Alaska, Hawaii, New York, Florida, etc. should follow the Food Guide Pyramid using headlines from articles students found describing national news. Include the name of the newspaper. Contact your local newspaper to visit your school to do a story on the Food Guide Pyramid and its function in your school's Lunch and/or Breakfast Program.	Your school nurse may suggest an expert who can kick off a discussion about working to one's potential using food as a fuel to feel your best and perform at your best. Exercise, sleep, hygiene, and abstinence from drug use should be mentioned as other factors that work together along with food for a healthy body.
24	Ask the Food Service Director for next month's menu. Divide the students into groups. Each group will get a listing of one week of meals. Ask the students to review the foods and make new titles for the names of the foods on the menu to reflect the process of food production. For e.g.., call spaghetti "sun ripened tomato sauce over sugar storage wheat noodles," etc. Share the menu titles with the director, so that the next menu may be printed with some of the class suggestions. Review the school lunch and/or breakfast menus looking for foods made from wheat and rice. Based on what you find on the menu, would you conclude that our staple grain is wheat or rice? Ask the Food Service Director to serve a rice dish and celebrate rice, the major staple grain of Asia.	
25	Have a "Let's Salute Pennsylvania Agriculture Day" in the cafeteria. Ask the Food Service Director to plan a menu with only foods produced in Pennsylvania. Since our state produces foods from all of the major food groups, this should be easy. To really hit home, select a few foods that are produced in your county. Barley is a grain grown in Pennsylvania that is not commonly used for food. (Most barley is used to make beer.) Ask the food service director to prepare a food made with barley. A possibility would be beef and barley soup.	

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LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
25 (con't)	Investigate a local food cooperation that distributes locally grown foods. Invite small loops to discuss local, sustainable agriculture to the class.	
26	Ask the Food Service Director to display the calories for each meal and/or meal item.	
27	Ask the Food Service Director to display the food labels and nutrition information from the packages of the food being offered each day. Set up a bulletin board with some of the nutrition information of commonly eaten food products.	
28	Ask the Food Service Director to inform the class of the school's obligation to help the students meet their nutrient needs while at school. Explain that if the students eat what is offered at breakfast and lunch, then nearly two thirds of the nutrient recommendations should be met right here at school. (Breakfast meets one fourth of a child's daily needs and lunch meets one third.) Remind the students that what is thrown out is of no benefit to their health. If your Food Service Director desires, have him/her ask the students for suggestions to reduce plate waste in the school.	The nurse (or team coach, etc.) can discuss health behaviors and goal setting, emphasizing that goals we set for ourselves should be realistic. Setting ourselves up for success is the best way to accomplish a goal. Children should strive for changes that they will be able to meet instead of those that are unattainable.
29	Ask the Food Service Director to speak about ways they have modified recipes to cut back on the amounts of added sugar and fat. Have students design a bulletin board for the cafeteria that depicts how this has been accomplished.	Invite the nurse to talk to the students about dental health. Metabolism of carbohydrates in the mouth leads to acid production which damages tooth enamel. If brushing isn't possible, it is important to at least rinse the mouth after eating. Ask the nurse to reinforce brushing and flossing as important healthful habits. You can also ask the nurse for a recommendation of a dentist or a dental hygienist who may come speak with the class instead.

LESSON	FOOD SERVICE COOPERATION	INVITE THE SCHOOL NURSE
30	Ask the Food Service Director to share food labels or nutrition composition charts of some foods offered in the cafeteria. Have the students compare similar products in the grocery store. Are school lunch items higher in sugar and fat?	The American Heart Association and the American Cancer Society have lessons and activities that your school nurse could conduct in your classroom. Focus should be on dietary fat and its link to heart disease and cancer.
31	Suggest the favorite recipe modification to the school Food Service Director. Ask him/her to put the cake on the menu and do not let the school know of the recipe modification until after lunch is over. At the end of the lunch hour, have students fill in happy or sad faces to indicate if they liked the new reduced fat recipe. Post the faces in the cafeteria in a graph form. If most liked the reduced fat cake, label the graph, "We're all Smiles Over Low Fat!"	
32	The students can use the Pyramid Power Book to compute the calories for a week's worth of school lunch menus and then post the calories in the cafeteria. Indicate that these calories are used to get the students through the afternoon so they can think, work, and run at their best.	
33		Ask the nurse to class to discuss the health benefits of exercise. The American Heart Association has excellent brochures for children as well as lesson plans and activity kits directed to children for the prevention of heart disease. Keep the message upbeat—the goal is to get the students wanting to move and enjoy movement.
34	Invite the Food Service Director to share information on the school breakfast program and the choices that are available each day. Compare the school breakfast with the breakfast available at fast food restaurants.	

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THE FOOD GUIDE PYRAMID & THE DIETARY GUIDELINES

Since 1916 the U.S. government has designed food guides to help Americans make healthful food choices. Early guides were developed to prevent nutrient deficiencies, but today, nutrient deficiencies are less of a problem. Instead, many Americans suffer from health problems such as obesity, heart disease, and certain cancers, which result from an excess of food or imbalance of food choices.

In the early 1980's The Dietary Guidelines for Americans were written to give guidelines to help prevent these chronic diseases. In 1992 The Food Guide Pyramid was approved to augment four (marked with an *) of the Dietary Guidelines in the promotion of healthy eating to reduce the risk of diet-related diseases. (The United States Department of Agriculture ammended the guidelines in 1995.)

THE DIETARY GUIDELINES INCLUDE:

- Balance the food you eat with physical activity-maintain or improve your weight.
- Choose a diet with plenty of grain products, vegetables, and fruits. *
- Choose a diet low in fat, saturated fat, and cholesterol. *
- Eat a variety of foods. *
- Choose a diet moderate in salt and sodium.
- Choose a diet moderate in sugars. *
- If you drink alcoholic beverages, do so in moderation.

The Food Guide Pyramid's primary function is to illustrate four key dietary guidelines (*), and more specifically, to provide a memorable image of variety, moderation and proportionality.

FOOD GUIDE PYRAMID: THREE MAJOR CONCEPTS

VARIETY

Variety refers to eating foods from all the food groups as well as choosing different foods within each group. The primary focus is on the names of the food groups and the foods within the groups. The underlying message is that no one food or food group is more important than another.

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Foods are grouped by the nutrients they provide and their common use in meals. Eating foods from all the food groups provides needed amounts of nutrients for a healthful diet while providing a minimum of calories from fats, oils and sugars. Foods with added fats and sugars are high in calories with few vitamins and minerals and therefore are to be used sparingly.

PROPORTIONALITY

Proportionality means eating relative amounts of food from all the food groups. The basic premise is that different food groups have different numbers of servings recommended. Each food group has a range of recommended servings. Ranges are given because of individual variations in the need for calories and nutrients due to differences in body size, age, sex, activity level, and individual needs. The usefulness of fat and sugars depends on an individual's calorie needs.

Some children see the pyramid and because of the food group size think Breads, Cereals, Rice, and Pasta are suddenly the most important food group. Therefore you must emphasize that the number of servings does not reflect importance; all food groups are equally important.

MODERATION

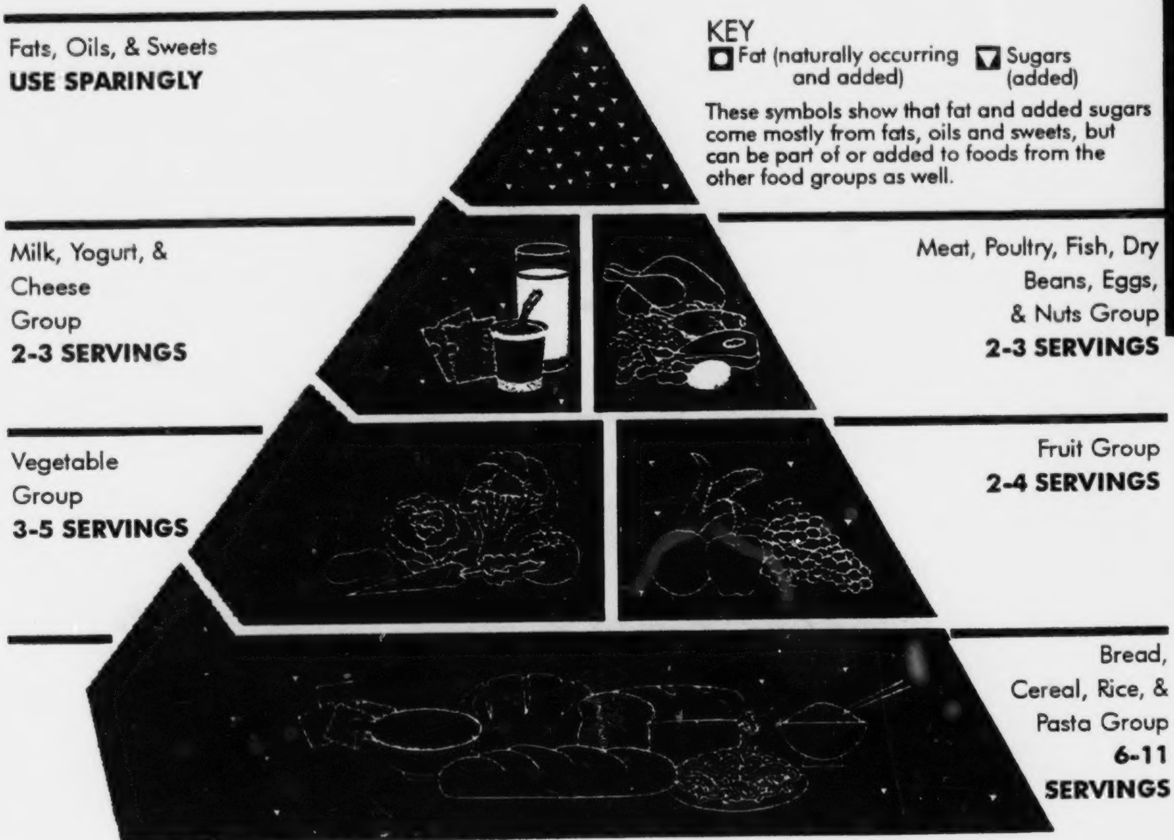
Moderation is closely related to the concept of balance. It refers to eating foods in recommended serving sizes and eating fats, oils, and sweets sparingly. All the five major food groups are important and desirable; however, limiting intake of fats, oils and sugars is also important for a healthy diet.

The Food Guide Pyramid graphic does not define a serving size. This is a concern to many people when they look at the graphic and see the number of servings. The first reaction is "too much food!" However, once a serving size is seen and understood it becomes more clear that these serving recommendations are not difficult to achieve. Serving sizes for the Food Guide Pyramid are different from those on food labels. It is best just to follow those sizes designed by USDA when teaching from the Food Guide Pyramid. Also, "sparingly" is a concept, not an absolute measure. Since your students can't measure sparingly they'll need to develop an understanding of the word in context to the total diet.

Teaching moderation also includes knowing the food sources of fat and added sugar and eating them sparingly. The pyramid illustrates how foods with fat and added sugar are distributed across all the major food groups and how food choices should be modified within all the major food groups to decrease the total amount of fat and sugar intake. Therefore children need help learning to make comparisons of foods within food groups.

FOOD GUIDE PYRAMID

A GUIDE TO DAILY FOOD CHOICES



Fats, Oils, & Sweets
USE SPARINGLY

KEY
■ Fat (naturally occurring and added) ▼ Sugars (added)

These symbols show that fat and added sugars come mostly from fats, oils and sweets, but can be part of or added to foods from the other food groups as well.

Milk, Yogurt, & Cheese Group
2-3 SERVINGS

Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS

Vegetable Group
3-5 SERVINGS

Fruit Group
2-4 SERVINGS

Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS

SOURCE: U.S. Department of Agriculture/U.S. Department of Health and Human Services

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KEY CHANGES FROM THE BASIC FOUR TO THE FOOD GUIDE PYRAMID

- The move from the Basic Four to the Food Guide Pyramid focuses on the prevention of nutrition-related disease versus the goal of (the Basic Four) avoiding nutrient deficiencies.

- The Food Guide Pyramid addresses total calorie needs of people. The Basic Four was just the minimum number of servings needed in a day to prevent deficiencies.

- The number of food groups has changed from four, or four plus an "other", to five major food groups plus the tip.

- The names of food groups have changed from:

Basic Four		Food Guide Pyramid
Bread, Cereals and Grains	to	Breads, Cereals, Rice, and Pasta
Fruits and Vegetables	to	Vegetable group Fruit group
Milk and Milk Products	to	Milk, Yogurt and Cheese
Meat and Meat Alternatives	to	Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts
"Others"		eliminated Fats, Oils, and Sweets added.

- The number of servings has increased to meet total calorie needs.

	Number of Recommended Servings	
Food Group	***Basic 4***	***Food Guide Pyramid***
Breads, Cereals, Rice, & Pasta	4	6 to 11
Fruit and Vegetables	4	3 to 5 vegetables 2 to 4 fruits
Milk	2	2 to 3
Meat	2	2 to 3

- The number of servings has changed from a specific number to a range to reflect individual needs and differences.

- A new group has been introduced named Fats, Oils and Sweets; it is not a substitute for the former "Others" group and it does not include food products such as cake, cookies, French fries. It does include candies and beverages such as cola.

- The Food Guide Pyramid has shifted away from using words like "caution" and "avoid" for such ingredients and beverages to a more positive statement, "use sparingly."

- Cheese and cottage cheese are no longer meat substitutes.

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- The serving size of ready-to-eat cereal has been changed from one cup to one ounce. The serving size of fruit and vegetable juice has been changed from 1/2 cup to 3/4 cup.

Teacher Information

PYRAMID TEACHING TIPS

- To introduce the pyramid, we recommend that you start at the bottom and move up to the tip. Also, start with simple foods, then combination foods, and later add foods with added fat and sugars.
- Note that vegetables appear first from left to right. In common language, we are used to saying "fruits and vegetables." This may be difficult to override without conscious effort. You'll need to focus on trying to say vegetables and fruits.
- It may be useful to introduce the pyramid without the sugar and fat symbols; add them after they understand the basic food groups.
- Emphasize that all food groups work together; no one food group is more important than another.
- Emphasize that the number of servings does not reflect importance; all food groups are equally important. Youngsters especially tend to mistake Breads, Cereals, Rice and Pasta as the most important food group because it is the biggest group on the pyramid.
- One easy way to remember what does and does not go into the tip of the pyramid is to relate the tip to ingredients. Usually we consume foods found in the tip in combination with other ingredients, not by themselves. The ingredients found in the tip, however, offer more energy and less nutrient value than the foods found in the other major food groups.
- The pyramid reflects recommendations to eat more complex carbohydrates and less fat and refined sugars. This would be easy if we ate all our foods in a simple, minimally processed form. Instead, we eat many processed foods like apple pie, French fries, potato chips, fried chicken, and chicken burritos instead of raw or steamed vegetables and fruits or chicken baked without the skin. Our food supply is plentiful in fat and added sugar. The Food Guide Pyramid is designed to help consumers recognize that fat and added sugar can appear in each major food group, depending on the food choices made. It also helps us recognize that some fat and added sugar in moderation is acceptable, but a diet with too many foods with fat and added sugar may lead to excess calories and a greater risk for chronic diseases.

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THE BOTTOM HALF OF THE PYRAMID

The three major food groups in the bottom and widest part of the pyramid are made up of foods that originate from plants, have very little fat, and are high in complex carbohydrates. Vitamins, minerals, and water are other essential nutrients in these foods. The Dietary Guidelines for Americans suggest we choose a diet with plenty of vegetables, fruits, and grain products. Eating the recommended number of servings from these three food groups is the foundation of a healthful diet.

Even though these foods begin with little fat, food manufacturers process them; therefore the marketplace is filled with high fat breads like donuts, cakes, cookies, pie crusts and pastries. Fried vegetables are often popular with children. Many fruits are eaten canned in heavy sugar or baked in pies. Processing with added fat and refined sugar changes the energy value and nutrient quality of these food groups. The foods with fat and added sugar in these three food groups should be used sparingly.

THE TOP HALF OF THE PYRAMID

The foods in the two major food groups in the upper half of the pyramid are from animal sources, with the exception of dry beans and nuts. These foods are high in protein and provide essential fat. Beans are a naturally low fat "meat" choice. They have protein and mineral quality closer to meat than to grains or vegetables. Beans, like all plants, have no cholesterol and few saturated fats. Nuts do not contain cholesterol but have fat.

Milk has carbohydrate but meat does not. Carbohydrate and fat provide the body with energy but do not function in cell building the way protein does. In fact, it is so important to use the protein for growth and maintenance of cells that we must eat enough carbohydrate and fat to spare protein for its major job.

Fat is an essential nutrient. Fat is in both the Milk and Meat groups. However, there are high fat and low fat choices within each of these groups. Skim milk and 1% low fat milk products are the low fat choices in the Milk group. Whole milk products like hard cheeses, ice cream, and whole milk yogurts offer more fat. In the Meat group, lower fat choices include lean cuts of beef and pork, fish, dry beans, the white meat in poultry, and poultry without skin. Our food supply contains many foods high in fat. If foods are not chosen with some thought, the result can be more fat than is necessary. Excess calories from carbohydrate, protein, or fat are stored in the body as fat, and over time can increase one's risk of diseases such as heart disease and some types of cancer.

The tip of the pyramid designates a small area for the fat and sugar in the diet. There is no recommendation for the number of servings. Instead the concept of "sparingly" must be taught. Examples of fats and oils are salad dressings, mayonnaise, cooking oils, butter, and margarine. These foods offer energy with little nutrient value. Sugars such as refined sugar, honey, jelly and jams, corn syrup, candy, soft drinks, and fruit punches offer carbohydrate with little or no nutrient value. Basically, the foods in the tip offer energy with few vitamins and minerals.

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THE NEW FOOD LABEL

- Nutrition information will be virtually universal in the marketplace; almost every food will carry it.
- The information will be up-to-date with the dietary needs of Americans in the 1990s.
- Labels will show how each food fits into an overall healthy diet, nutrient by nutrient.
- Credibility will be restored to marketing claims such as "light," "fat-free," low-calorie," and "high-fiber."

New heading signals a new label. →

More consistent serving sizes, in both household and metric measures, replace those that used to be set by manufacturers. →

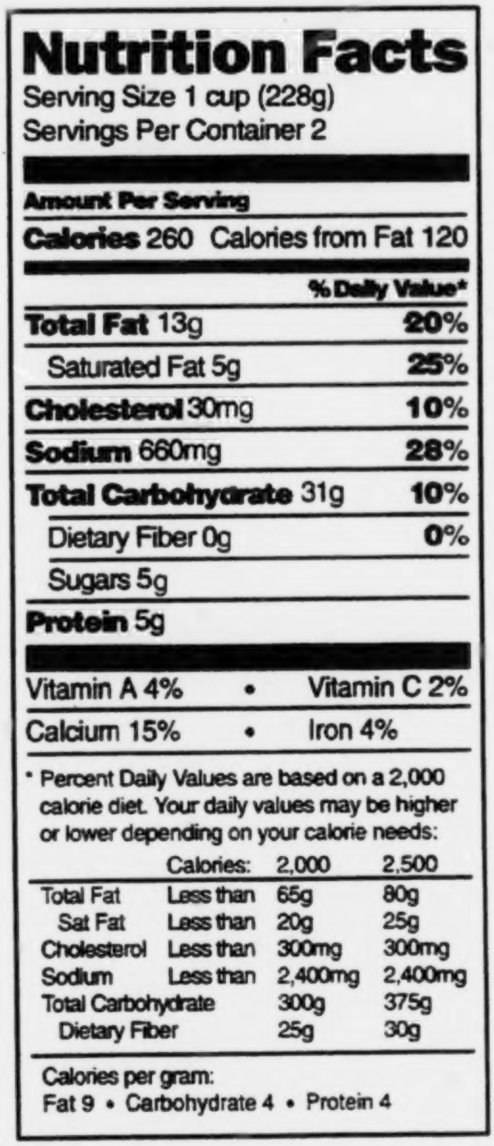
Nutrients required on nutrition panel are those most important to the health of today's consumerers, most of whom need to worry about getting too much of certain items (fat, for example), rather than too few vitamins or minerals, as in the past. →

Conversion guide helps consumers learn caloric value of the energy-producing nutrients. →

← **New mandatory component helps consumers meet dietary guidelines recommending no more than 30 percent of calories from fat.**

← **%Daily Value shows how a food fits into the overall daily diet.**

← **Reference values help consumers learn good diet basics. They can be adjusted, depending on a person's calorie needs.**



Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 260 Calories from Fat 120

	% Daily Value*
Total Fat 13g	**20%**
Saturated Fat 5g	**25%**
Cholesterol 30mg	**10%**
Sodium 660mg	**28%**
Total Carbohydrate 31g	**10%**
Dietary Fiber 0g	**0%**
Sugars 5g	
Protein 5g	

Vitamin A 4% • Vitamin C 2%
Calcium 15% • Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Source: The FDA Consumer, May 1993

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Dear Parent or Guardian:

"Every Day Lots of Ways" is a nutrition curriculum your child will be taught in the near future. To help reinforce concepts taught in the classroom, students are encouraged to actively participate in the lessons through various extensions. These extensions include activities in language arts, mathematics, science, social studies, physical education and computer technology; students will also have opportunities to participate in taste tests, dramatic play, and home-based investigations. Some extensions call for tasting food which may be new and different to your child (i.e. whole grains, uncommon vegetables and fruits). Therefore, it is important to know if your child has any food allergies or intolerences that will prevent him/her from participating in these activities. Students will be encouraged to try new foods, but will not be required to do so. Please complete the bottom portion of this letter and return it to school with your child.

Thank you for your support.

Please check one of the following: Student's name____________________

____ My child does not have a food allergy or dietary restriction. He or she may participate in food tasting.

____My child does have a food allergy or dietary restriction. He or she may participate in food tasting but may not eat the following items (Please list)

____
Parent signature   Date

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HEADLINE NEWS ENERGIZES THE U.S. FOOD GUIDE PYRAMID INTRODUCED

lesson 23

Grades 4 – 6 "Energy Choices"
Curriculum Connection: Language Arts/Social Studies/Health
Instructional Time: 40 minutes/part (2 parts)
Student Vocabulary: energy, Food Guide Pyramid, diet, media, classifieds, global, advertisement, energy output

NUTRITION OVERVIEW

Many people do not view nutrition as "news". However, it is a subject we continue to learn about and new findings in nutrition are newsworthy events.

OBJECTIVES

The student will locate and read information related to food, energy, and health in newspaper and magazine articles and other media resources.

The student will distinguish between local and national news by reading nutrition headlines from newspapers across the United States.

The student will identify the Food Guide Pyramid as a national guide for healthy eating every day.

MATERIALS

Part A
local, regional and national newspapers* (one per student)
Food and Energy in the News worksheet (at the end of this lesson)
scissors
large sheet of construction paper (one per student)
glue or tape

Part B
Headline News Energizes the U.S. (at the end of this lesson)
(reproduced as handouts or made into transparency master)
Food Guide Pyramid poster displayed in classroom (to obtain see Resource List)
Food Guide Pyramid Model worksheets (at the end of this lesson)

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The Food Guide Pyramid Can Work for You worksheet (at the end of this lesson), one per student

* **Note:** Newspapers can be brought in from home or donated by your local newspaper distribution center. You may also ask your librarian to save issues for you. Use papers that have food, health or living sections. Many have established the weekdays of Monday, Tuesday or Wednesday for these sections.

INFORMATION FOR TEACHERS

- Food supplies energy for the human body.
- Carbohydrate, protein, and fat are the three energy-yielding nutrients found in food. Vitamins and minerals help the body utilize food energy but do not supply energy.
- Over half our food energy should come from carbohydrates found in Bread, Cereal, Rice, Pasta, Vegetables, Fruits, Milk products, and Dry Beans.
- Diets high in fat and low in complex carbohydrates (starch and fiber) are associated with chronic diseases such as heart disease and certain types of cancer. According to the current Dietary Goals for the United States, a healthy diet is approximately 55-60% carbohydrate, 10-15% protein, and 30% or less in fat.
- The United States Department of Agriculture (USDA) Food Guide Pyramid is the recommended guide for improving American diets. It illustrates four key points in promoting healthy eating: choose a diet with plenty of grain products, vegetables, and fruits; choose a diet low in fat, saturated fat, and cholesterol; eat a variety of foods; and choose a diet moderate in sugars.
- Some foods provide energy (calories coming from carbohydrate-sugar and starch, fat, and protein) with nutrients while others provide mostly energy and few nutrients.
- Selecting appropriate foods from the Food Guide Pyramid can help Americans achieve adequate energy and nutrients while limiting fat and sugar.

STEPS TO FOLLOW

You may begin this unit with Part A, an introduction to the newspaper as a source of food, energy and health information, or you may skip Part A and begin with Part B.

Part A

1. Ask students how they receive news (newspaper, television, radio, magazines). Explain that all the various instruments of communication can be grouped together under the term "media". What else is included in the category called media?

   ask

2. Explain that the newspaper is one source (medium) of news that is the focus of this lesson. Distribute newspapers and *Food and Energy in the News worksheet*. Ask the students to name some of the various sections of the newspaper (national news, local news, sale advertisements, classifieds, sports, entertainment, etc.) Direct students to find the health/food or living section of the paper. Ask the students why health and food issues are newsworthy. (Topics to be discussed include: people eat, people enjoy food, food is associated with health costs, food safety, packaging, hunger, imports, and exports.)

   ask

   ask

3. Divide the students into groups of three or four. Assign either the entire *Food and Energy in the News* worksheet to all groups or specific questions to each group. When the students have answered the questions on the worksheet, ask them to mount the work onto construction paper for display. **Note:** May want to assign some of the above to be completed as homework to allow more time for class discussion.

4. Discuss the information the students found. Have the students present articles they selected and tell the class what caught their eye. **Optional:** Engage students in a discussion about reliability of the newspaper as a source of information. (Advertisements are carefully worded to sell a particular product, editorials are opinions, and headlines can be sensational to catch the readers' attention). One way to determine the reliability of an article is to look for the credentials of the writer. They are often listed in the by-line or at the close of the piece. Define by-line as the line printed above a newspaper or magazine article which tells who wrote it. **Optional:** Ask the students if any of their articles list credentials (writer, person quoted or interviewed, etc.)

5. Conclude that newspapers can be a source of information that influences the choices we make in our daily lives.

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Food, nutrition, and exercise are current health issues; therefore, we can find both direct and indirect information relating to health in several sections of the newspaper. Direct information is found in news articles or feature columns. Indirect information could be relayed through cartoons, advertisements, and pictures. All of this information can influence our choices about energy input, energy expenditure and health.

Part B

1. Explain that sometimes news is local; it only affects or is of interest to a certain community. Sometimes news is national because it directly affects everyone in the nation and sometimes it is global, affecting the entire world. Solicit some examples of each from students.

2. Distribute a copy of *Headline News Energizes the U.S.* to each student or display a transparency on an overhead projector.

3. Select student volunteers to read the titles, newspaper names and locations. Students should compare the message of all headlines and identify similarities.

4. Taking each headline in turn, ask students to explain what the article might contain. Ask why the Food Guide Pyramid is news throughout the United States and ask why the word "energize" is in the title. (Food is our source of energy, the fuels we choose to eat can influence our energy output and health.)

ask

5. Instruct students to focus on the headlines in the worksheet *(Headline News Energizes the U.S.)* and select some key words that appear (diet, USDA, nutrition, pyramid). List these key words on the board. Help students understand that these words are related. Use one of the following options: **Option 1:** Have students copy words onto scrap paper. Direct them to cut each word out and arrange words in a meaningful way. Then have students tape these words (in this arrangement) onto construction paper. **Option 2:** If students are having trouble organizing, give them slips of paper labeled with a central concept, such as diet. Have them copy key words from the board onto slips of paper. Continue with steps outlined above. **Option 3:** Write the word "diet" on the board and engage students in brainstorming of other

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relevant key words. Record their answers on the board. Challenge students to determine connections.

6. Distribute the *Food Guide Pyramid Model* worksheets. Students should follow the directions printed on the worksheets and assemble the two parts.

7. After the pyramids are assembled, students can use the pyramid model and the Food Guide Pyramid Poster to answer the *Food Guide Pyramid Can Work for You* worksheet. Direct the completion of this worksheet. Facilitate the sharing of responses.

9. Encourage students to eat a variety of foods for the best potential energy and good health and remind students that all the food groups are equally important. Conclude that the Food Guide Pyramid was designed by the United States Department of Agriculture (USDA) and is a guide to healthy eating every day.

EXTENSIONS

Bulletin Board Idea

Create your own "Headline News Energizes the U.S." and title the board "Pyramids in the United States." Draw (or attach) a map of the United States on the board. Ask students to pin samples to the bulletin board of the Food Guide Pyramid they find in newspaper and magazine articles (local, regional, and national), and on food product labels. Encourage students to create headlines of their own.

Careers

Journalist / Food Writer
Editor
Home Economist
Reporter
USDA Nutrition Educator
Mention careers that students found in different newspaper sections. (**Part A**)

Class Project

- Start a file of newspaper articles concerning food, nutrition and exercise. Assign the students to read the newspaper, clip related articles, and ask the students to share them with the class. Be sure they note the source by stating the newspaper name and publication date. As a group, the students can examine the messages being presented. What are the recommendations? What, if noted, are the credentials of the person making the recommendation? Is a health agency involved? If so, is the

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agency part of the US government or a private organization? For whom is the recommendation intended? After discussing these messages and the recommendations, ask the students how these recommendations might influence their families' recreation or food choices.

- Create a slogan to promote the Food Guide Pyramid. Make sure the slogan reflects the idea that not just your school, but children and adults all over the United States, are learning about the new food guide.

- Visit your local library to learn how to use the periodical collection. Many newspapers appear on microfiche. Request that the librarian explain how this resource is to be used. **Option:** For older students, assign key words to search for in an index like the "Reader's Guide" or another database.

Food Service Cooperation

- Decorate the cafeteria with the Food Guide Pyramid slogan posters suggested under "Class Projects."

- Show maps of the United States and make signs that indicate people in Georgia, California, Alaska, Hawaii, New York, Florida, etc. should follow the Food Guide Pyramid using headlines from articles students found describing national news. Include the name of the newspaper.

- Contact your local newspaper to visit your school to do a story on the Food Guide Pyramid and its function in your school's Lunch and/or Breakfast Program.

Further Investigation

Language Arts

- Have your students read the comic section of the paper for the duration of this unit, looking for and clipping comics about food or exercise. Students can share the cartoons and messages with the class. Compile the cartoons into a book. Ask the students to design their own cartoons about food, energy, and the Food Guide Pyramid.

- Write complete sentences using the following words: media, medium, mass media, multimedia.

Computer Technology

- You can read the newspaper without buying a single copy at the newsstand! Access the news daily-on the Internet! Listed below are several different newspapers and their web addresses.

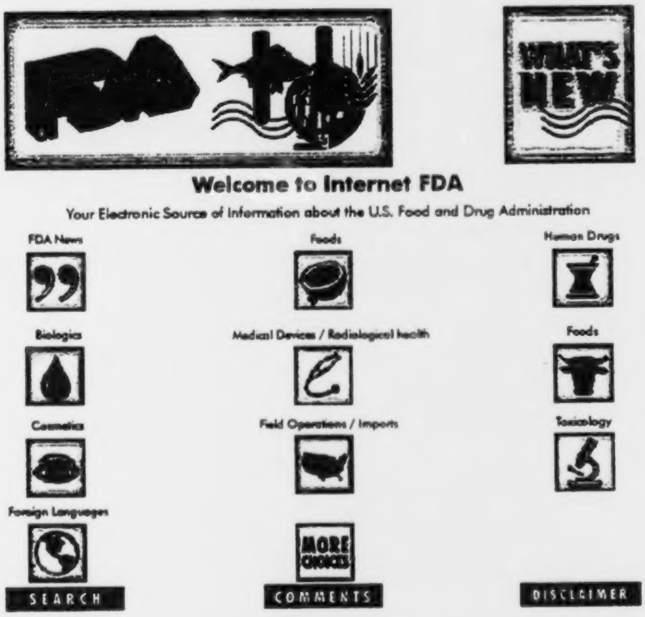
  USA Today — http://www.USAtoday.com/
  Philadelphia Inquirer — http://www.phillynews.com/inq/
  NY Times — http://www.NYTimes.com/
  Washington Post — http://www.Washington Post.com/

- You may also be able to access other sources of news—just investigate and search the world wide web for news or any other subject. Using a search engine on the world wide web, students can get a listing of different web pages that focus on the same subject. For example, to search the internet using the search engine called **Yahoo!™**, at the prompt type in: **http://www.yahoo.com**. From here, you can enter any subject or key word you want to search for. For example, if you are interested in learning about benefits of exercise, you can type in exercise, fitness, health, etc. For each subject you search, **Yahoo!™** will search the world wide web and compile a list of web pages providing information on that subject. All the student will have to do is click on that web page and **Yahoo!™** will take them there! You may consult your school or district's media or technical specialist for assistance.

Have the students brainstorm key words that they can search. Record the words on the board. Copy the list and give one to each student. Students may work on computers in small groups.

- Search the following internet addresses for food, energy and health related articles. **Note:** This is an excellent way to find current information. Share findings with the class. You must remember that all the information you find is not necessarily reliable as the Internet is not screened.

Check your school's policy on the use of on-line resources.



Welcome to Internet FDA

Your Electronic Source of Information about the U.S. Food and Drug Administration

FDA
http://www.fda.gov/fdahomepage.html
The Food and Drug Administration (FDA) web page, appropriate for grades 4-6, offers students the opportunity to learn about current news, foods, drugs, farming operations, and much more. Students can search the FDA for more specific subjects and may send comments or questions to the U.S. Food and Drug Administration.

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Dole 5 A Day
http://www.dole5aday.com/
This is a very colorful, educational web page geared towards grades 4-6. Students learn more about the "Dole 5 A Day" program while being able to click on links such as "news, school, and nutrition center."

Food and Nutrition Information Center
http://www.nalusda.gov/fnic/
The Food and Nutrition Information Center, an excellent resource for teachers, may also be appropriate for older students (grade 6) interested in learning about Dietary Guidelines for Americans, food labeling, and other food and nutrition information. Teachers may find useful educational materials about the Food Guide Pyramid, Healthy School Meals, and other resources.

Hershey Foods Corporation
http://www.hersheys.com/hershey/
Students, grades 1-6, have the opportunity to learn the history of Hershey Foods Corporation and about its founder, Milton S. Hershey. Take a tour of the famous Hershey's Chocolate Factory and kitchens, obtain nutrition information on Hershey candy, and get answers to commonly asked questions about Hershey chocolate.

Nabisco
http://www.nabisco.com
Students grades K-6, will enjoy their visit to the Nabisco Neighborhood! Teachers, parents, and students will learn what's new about Nabisco products, nutrition information, and recipes. Students will be able to send comments or questions to Nabisco via electronic mail through this web page.

National Institute of Mexico's Nutrition Page in Spanish
http://spin.com.mx./~jledesma
This is an excellent resource for Spanish speaking students (it is written in Spanish) and for students interested in cultural variations. This web site, from the University of Mexico, offers current nutrition news and other pertinent information focusing on interests of Spanish speaking cultures.

The ADA (American Dietetic Association) Home Page
http://www.eatright.org/
Teachers, parents, and older students—grade 6, will learn about the latest nutrition topics, facts and policies. In addition, answers to frequently asked questions about nutrition are provided as well as important information regarding proper nutrition and fitness.

The Food Resource
http://www.orst.edu/food-resource/food.html
This web site offers an information base that provides a large collection of images of food, other food references, and links to related documents. Appropriate for grades K-6, the photos and images of food are visually pleasing.

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USDA Home Page

http://www.usda.gov
Students can visit the United States Department of Agriculture, learn about current nutrition news and policy, and become familiar with the mission and objectives of the USDA. More appropriate for grades 4-6, the USDA web pages focus more on the political and governmental aspects of nutrition.

Invite the Nurse

Your school nurse may suggest an excellent speaker or expert who can kick off a discussion about working to one's potential using food as a fuel to feel your best and perform at your best. Exercise, sleep, hygiene, and abstinence from drug use should be mentioned as other factors that work together along with food for a healthy body.

Peer Help

- Make Food Guide Pyramid sorting mats for the second and third grade classrooms (instructions included at the end of this lesson). The students need 24" x 36" drawing paper or craft paper, markers, and yardsticks. For long life, have the mats laminated. Coordinate the timing of this extension with the second and third grade teachers (they need sorting mats for Lesson 22).

- Read the newspaper with the students in the primary grades. Find articles about health and fitness that pertain to children. Share the information with other classes.

- Help the students in the primary grades develop map skills by identifying and locating different states. Older students may prepare and discuss unique facts found in newspaper articles.

- Have students share the cartoons they designed with younger students. (See language arts extension)

Taking It Home

Read the newspaper with a family member. How many health related articles can you find?

FOOD AND ENERGY IN THE NEWS

Name ____________________ Date __________

Read the newspaper, looking for articles described below. Cut the information out, and glue or staple it to a large sheet of construction paper. Label each article or item. (For example: label a food article "An Article About Food.") Answer the questions in a complete sentence on the construction paper mount.

1. Find an article about food. Underline the health message. Could this message help you? Explain.
2. Find an article about exercise. Underline the health message. Could this message help you? Explain.
3. Find three pictures of people using energy. Choose only one from the sports section. Cut out and rank order the pictures from highest to lowest in the amount of energy output. Explain your rankings.
4. Look in the classified section for job openings in food service or health/nutrition. Underline the job qualifications. Would you enjoy doing this job every day? Why or Why not?
5. Find an advertisement for a health club or fitness program. In which section of the newspaper did you find this? Are there fitness programs for children?
6. Find an advertisement for a food that shows the calories, fat, or sugar as part of the ad. Is this a food you would like to eat? Why or why not?
7. Find a cartoon about food or eating. Do you think the cartoon is funny? Why or why not?
8. Look in the television listings for a program on health and exercise or food and nutrition. Is this a program you would watch? Explain your answer.

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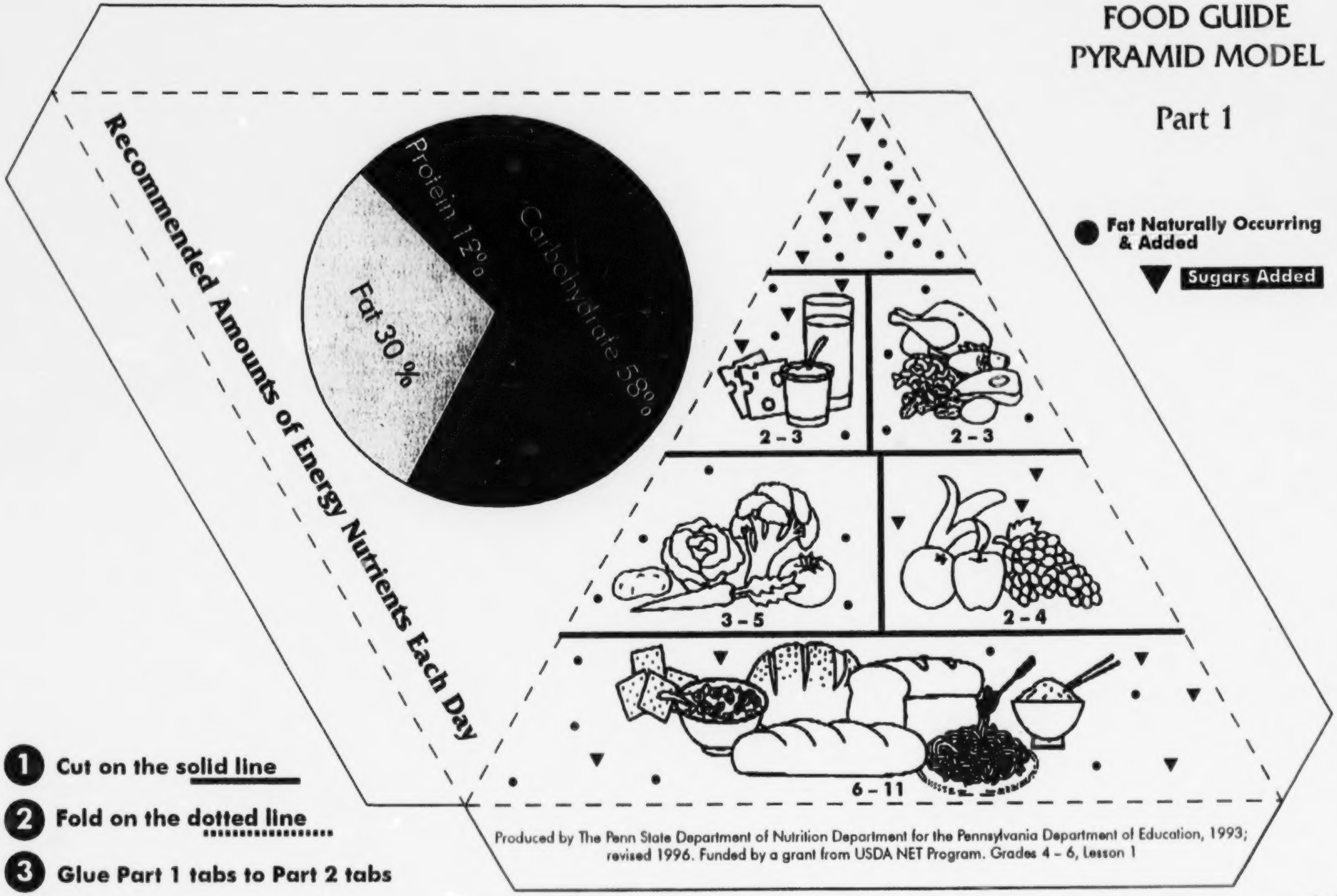
FOOD GUIDE PYRAMID MODEL

Part 1

● **Fat Naturally Occurring & Added**

▼ **Sugars Added**


Recommended Amounts of Energy Nutrients Each Day
Protein 12%
Carbohydrate 58%
Fat 30 %
2 - 3
2 - 3
3 - 5
2 - 4
6 - 11

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1. **Cut on the solid line**
2. **Fold on the dotted line**
3. **Glue Part 1 tabs to Part 2 tabs**

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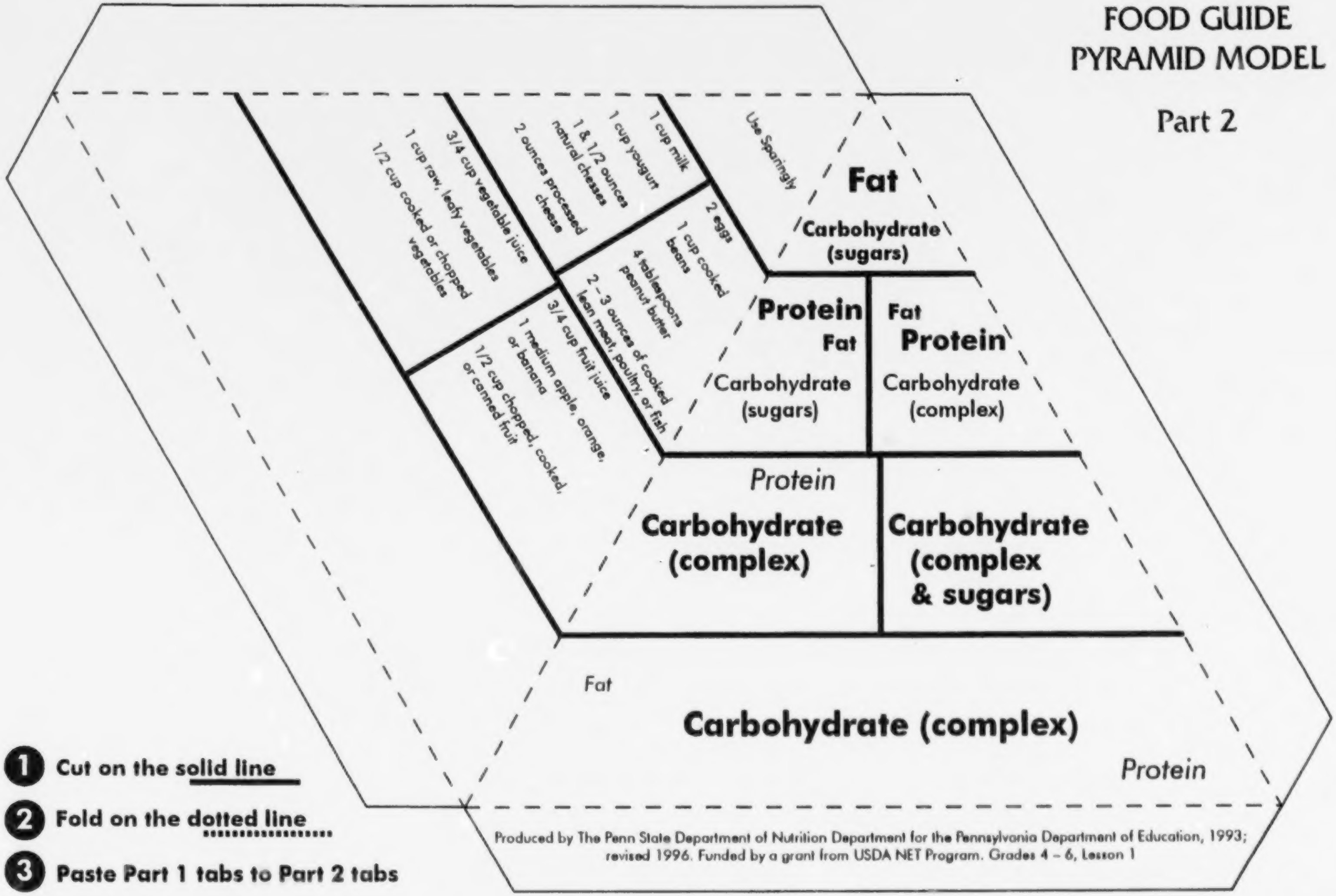
FOOD GUIDE PYRAMID MODEL

Part 2


Use Sparingly
1 cup milk
1 cup yougurt
1 & 1/2 ounces natural cheeses
2 ounces processed cheese
2 eggs
1 cup cooked beans
4 tablespoons peanut butter
2 – 3 ounces of cooked lean meat, poultry, or fish
3/4 cup vegetable juice
1 cup raw, leafy vegetables
1/2 cup cooked or chopped vegetables
3/4 cup fruit juice
1 medium apple, orange, or banana
1/2 cup chopped, cooked, or canned fruit
Fat
Carbohydrate (sugars)
Protein
Fat
Carbohydrate (sugars)
Fat
Protein
Carbohydrate (complex)
Protein
Carbohydrate (complex)
Carbohydrate (complex & sugars)
Fat
Carbohydrate (complex)
Protein

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① **Cut on the solid line**

② **Fold on the dotted line**

③ **Paste Part 1 tabs to Part 2 tabs**

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Headline News Energizes the U.S.!

**"On Nutrition
The $855,000 pyramid
unveils dietary guidelines"**
Chicago Tribune
May 21, 1992

**"U.S. Recognizes
Nutrition Advice"**
The New York Times
April 28, 1992

**"The 'pyramid' finally a
winner"**
The Philadelphia Inquirer
April 28, 1992

**"Looks like USDA's pyramid
is new shape of an ideal diet"**
The Atlanta Constitution
April 29, 1992

**"USDA Points to 'Pyramid'
for Proper Diet"**
Los Angeles Times
April 29, 1992

**"Shape of diet to come
pointed out by USDA"**
The Miami Herald
April 29, 1992

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THE FOOD GUIDE PYRAMID CAN WORK FOR YOU

Name____________________________ Date___________

Answer the following questions using the information found on the Food Guide Pyramid model and the Food Guide Pyramid poster.

1. Focus on the bottom three food groups of the Food Guide Pyramid. What nutrient is most represented here?

   Now focus on the top three food groups of the Food Guide Pyramid. What two nutrients are most represented here?

2. List five different foods from the Bread, Cereal, Rice and Pasta group.

3. List two different foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group. Name one food that comes from a plant and one that comes from an animal.

4. Which should you eat more of in a day, foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group OR the Bread, Cereal, Rice and Pasta group?

5. Why are the sizes of the food groups pictured in the bottom of the pyramid bigger than the sizes of the food groups pictured in the top?

Discover the pyramid message:

Fill in the blanks with the first letter in **p**yramid, **e**nergy, or **nu**trients! You may use each letter more than once.

___at Mor___ ___la___ts !

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THE FOOD GUIDE PYRAMID CAN WORK FOR YOU (ANSWER KEY)

Name________________________ Date__________

Answer the following questions using the information found on the Food Guide Pyramid model and the Food Guide Pyramid poster.

1. Focus on the bottom three food groups of the Food Guide Pyramid. What nutrient is most represented here?

   carbohydrates

   Now focus on the top three food groups of the Food Guide Pyramid. What two nutrients are most represented here?

   protein and fat

2. List five different foods from the Bread, Cereal, Rice and Pasta group.

   answers will vary - rolls, oatmeal, fried rice, macaroni, etc.

3. List two different foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group. Name one food that comes from a plant and one that comes from an animal.

   answers will vary - Accept any Meat, Poultry, Fish and Eggs for animal sources . Accept examples of Dry Beans and Nuts as plants.

4. Which should you eat more of in a day, foods from the Meat, Poultry, Fish, Dry Beans, Eggs and Nuts group OR the Bread, Cereal, Rice and Pasta group?

   Bread, Cereal, Rice, and Pasta group

5. Why are the sizes of the food groups pictured in the bottom of the pyramid bigger than the sizes of the food groups pictured in the top?

   The size reflects the number of servings; we should eat more servings a day from the bigger pieces of the Food Guide Pyramid than from the smaller pieces.

Discover the pyramid message:
Fill in the blanks with the first letter in **p**yramid, **e**nergy, or **n**utrients! You may use each letter more than once.

Eat More Plants!

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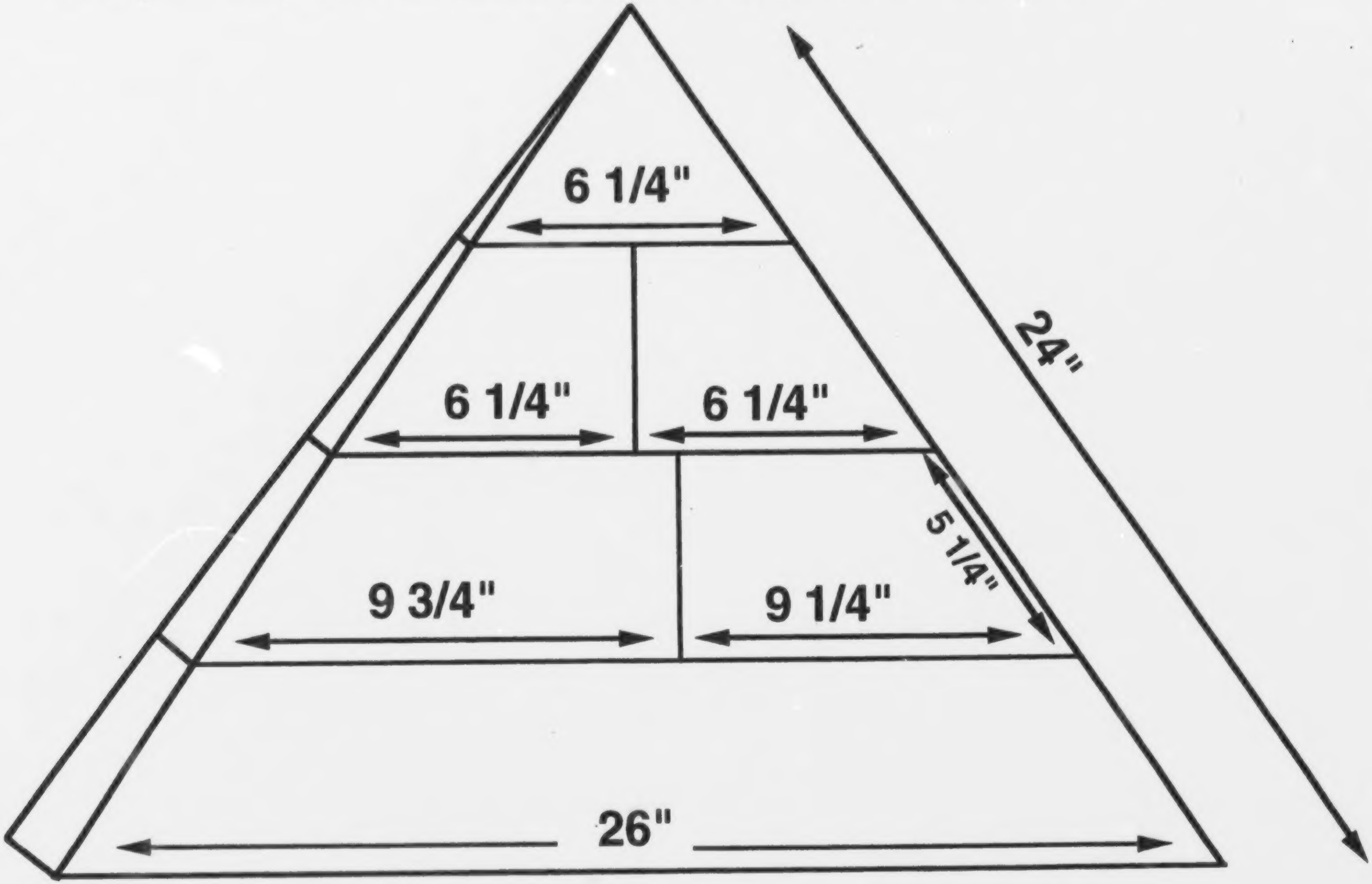
Making a Food Guide Pyramid Sorting Mat

On a sheet of 24x36" drawing paper, measure the dimensions of the Food Guide Pyramid using a yardstick. Outline the Food Guide Pyramid with a marker and cut along the outside of your markings. Color, label or decorate your Food Guide Pyramid anyway you like!



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THE SUGAR FACTORY

lesson 24

Grades 4 – 6 "Energy Choices
Curriculum Connection: Science/Art
Instructional Time: 20 minutes/part (3 parts)
Student Vocabulary: photosynthesis, nutrient, carbon dioxide, carbohydrate, sugar, starch, chlorophyll, chloroplasts, concept

NUTRITION OVERVIEW

Photosynthesis, although not taught in depth, plays an important role in our food production.

OBJECTIVES

The student will complete a concept map showing the relationship among the components of photosynthesis.

The student will illustrate photosynthesis' influence on our food supply by creating a mobile.

The student will identify the sun as the basic catalyst of his/her food supply.

The student will see that carbohydrates are the most basic source of energy for all plants, animals, and humans.

MATERIALS

Food Energy Concept Map (at the end of this lesson)
Photosynthesis reference sheet (at the end of this lesson)
sheet of plain paper (one/group)
sheet of oak tag (i.e., manila colored cardstock)
green, blue, and white construction paper
magazine pictures of food or food packages
scissors
markers, crayons, or colored pencils
glue or tape
string or yarn

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INFORMATION FOR TEACHERS

- Our basic source of energy from food is sugar, the simplest form of carbohydrate.

- "Carbo" comes from carbon dioxide and "hydrate" means water. Carbohydrates are made of carbon, hydrogen, and oxygen. There are two general types of carbohydrates, simple (sugars) and complex (starches).

- All carbohydrates whether simple or complex, originate in green leafy plants through photosynthesis. Photosynthesis is the process by which green plants make sugar using carbon dioxide, water, and light. When animals and humans eat green plants, they consume this sugar (stored as starch), or carbohydrate, for energy.

- Green plants have cells called chloroplasts, which act like sugar-making factories. Chloroplasts contain green matter called chlorophyll. In the green leaves, chlorophyll activates the sugar making process: it traps sunlight to use as energy and pulls carbon dioxide from the air to combine with water taken up by roots of the plant. These compounds are involved in a series of reactions that produce sugar.

- Sugar can move from leaves (where it is made) to other parts of the plant when energy is needed. Once the plant is energized, the excess sugar molecules are joined together and stored as starch. A starch molecule can be made up of 3,000 sugar units linked together. Storage can be anywhere in the plant, therefore, by eating the fruit, root, seeds, stem, flower, or leaf of the plant, we consume this stored energy (starch).

- When animals eat green plants, they get energy from the starch (stored sugar). From this starch, or carbohydrate, animals can make protein. Animals, like plants, also store energy. However, unlike plants, the major storage form of energy in animals is fat. Since humans eat both plants and animals they obtain carbohydrates, fat, and protein as energy sources.

- Carbohydrates are the ideal fuel for most bodily functions. Therefore, more than half of the energy we get from food should come from carbohydrates in the form of starch, and to a lesser degree, sugars.

- Starch in green plants must be broken down into simpler units (sugars) in order for the plant to use this stored energy. To do this, oxygen from the air is taken in by leaves of the plant. When oxygen and sugar (stored in starch) react, carbon dioxide, water, and energy are released from the plant. This reverse process of photosynthesis that occurs in green plants is called respiration. The human body also goes through this process of respiration. Just like green plants store excess energy (as starch), human bodies store excess energy. When we breathe in oxygen, the stored energy is released as well as water and carbon dioxide.

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- The food groups in the bottom half of the Food Guide Pyramid - Bread, Cereal, Rice, Pasta, Vegetables, and Fruits - are made predominately of carbohydrates in the form of sugar and starch. We should eat more servings per day from these three food groups than the other groups because they provide energy with vitamins and minerals. Other good sources of starch are dry beans and seeds.

- Foods high in starch are naturally low in fat. Starch is slower to digest and provides a longer release of energy to the body compared to simple sugar.

- Concept maps can be used to assess student learning as well as aid a student in organizing knowledge in a meaningful way. They are most insightful when learners generate the entire map themselves; however, we have given a framework for the concept map in this lesson since the students may not be familiar with this procedure.

STEPS TO FOLLOW

Part A: Review of Photosynthesis

Note: Use *Photosynthesis* reference sheet to make transparency.

1. Place students in groups of four and assign one person the role of information recorder. Give students 5 or 6 minutes to discuss the following questions; "What forms of energy are in foods?" (sugar-a simple carbohydrate, starch-a complex carbohydrate, protein and fat), "How does energy get into food?" (sugar-photosynthesis, starch-storage of excess sugar, protein-muscle tissue in animals and fat-storage of excess starch in animals). The recorder should write down their group's answers.

If students don't have this background, teacher will have to be more directive. Perhaps provide students with a range of acceptable answers to let them know they are "on the right track."

2. Invite recorders to share group responses and list responses on the board.

3. Summarize sources of our food and energy. Explain that humans eat both plants and animals. The animals we eat get their food from plants and other animals. Ask how plants get their energy (through photosynthesis).

ask

4. Explain that green plants make sugar from the water in rain, the carbon dioxide from air, and the energy from sunshine. Define this process as **photosynthesis**. Instruct students to pronounce the word photosynthesis. "Photo" refers to light and "synthesis" means "to put together." So photosynthesis means to put together with

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light. Conclude that (chlorophyll) in green leaves are the sugar factories of our food supply.

5. Refer to starch as the sugar factories inventory supply or warehouse of sugar. Tell the students that plants link sugar units together to make starch, which is stored by the plant for later use. Starch can be made up of as many as 3,000 sugar units. Explain to students that there are two main sources of energy, carbohydrate (starch) and fat. Ask students how green plants and animals store energy in different ways. Explain that green plants store energy as starch and animals store energy mainly as fat. Thus, plant foods are low in fat and high in carbohydrates, while animal foods are higher in fat.

ask

6. Conclude that both plants and animals ultimately rely on photosynthesis for food. Illustrate this through the use of flow charts or concept maps, which students will complete in the following activities.

Part B: Creating a Concept Map of Photosynthesis

1. Distribute the *Food Energy Concept Map* worksheet. You might want students to work in pairs. Explain that a concept map is a visual representation of the relationships between and among concepts. A completed concept map represents a knowledge framework of a particular topic.

2. Instruct the students to complete the worksheet by using the concepts listed on the left side of the page to fill in the empty bubbles in a meaningful way. Some bubbles are already filled in as a guide in completing the worksheet. Each concept should be used only once in the concept map. (Note that three of the four bubbles on the bottom are interchangeable.)

3. Discuss the concept map with the students. Help them see how our food supply depends on the sugar plants produce by photosynthesis.

Part C: Making a Photosynthesis Mobile

1. Distribute materials to make mobiles of the sugar factory. Direct creation of the mobile. Students may work individually or in groups. Let each student be creative in making the mobile represent his or her own concept of

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photosynthesis and how it all "hangs together" to create a food supply. If your students seem unable to get started, some suggestions follow:

Begin by illustrating the elements of photosynthesis: yellow sun (made from oak tag or another strong paper), green leaves, and water (either blue or white). (Air is also part of photosynthesis but it is hard to illustrate. Therefore, the students could either write the words "air" or "carbon dioxide" on a piece or paper or they could let it be represented by the air around us in the environment.) Illustrations should be double-sided.

Punch one hole at the top of the sun. Thread string or yarn through this hole and tie in a knot. This will allow the mobile to hang from the ceiling.

Using a hole punch or scissors, punch three holes (two if the air is not illustrated) at the bottom of the sunshine.

Punch holes in each of the drawings of the green leaves, the water, and the air, if illustrated. Cut pieces of string or yarn and tie to these drawings. Once tied, connect the drawings to the sunshine.

Paste a magazine picture of a food that originated from photosynthesis onto construction paper or use an actual food package. Punch one hole in the food model and punch another hole at the bottom of the sunshine. Use a piece of string or yarn to attach the food model to the mobile.

2. Remind students that our entire food supply is dependent upon photosynthesis. Even though we eat both plants and animals, plants are and should be a large part of our diets. Plants give us sugar and starch to energize our bodies. These sugars and starches are called carbohydrates. We get carbohydrates from Bread, Cereal, Rice, Pasta, Vegetables, and Fruits. Carbohydrates are the one nutrient that should supply over half of our food energy. Relate this to the *Food Guide Pyramid Can Work For You* worksheet in Lesson 23.

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EXTENSIONS

Bulletin Board Ideas

- Put a sun in the middle and use strings to display the elements included in photosynthesis. Explain how the sun by light energy starts the production of food for human energy. Reinforce the sun as our source of energy both internally and externally.

- Make a pictorial display of how green plants get food. Show the plant roots, stems and leaves. Use arrows to show the transportation of carbon dioxide and water through the plant to make sugar. Don't forget to picture the sun with its rays pointing to the leaves.

Careers

Food Scientist
Botanist
Molecular Biologist/Genetic Engineer
Greenhouse/Nursery Worker
Horticulturist
Farmer

Class Project

- Start a garden. Grow vegetables on top of the soil (lettuce) and under the soil (potatoes). Look at the colors and how sunlight affects the color of the plant.

- Have a "green day" in honor of chloroplasts and chlorophyll. Everyone should wear something green!

Food Service Cooperation

- Ask the Food Service Director for next month's menu. Divide the students into groups. Each group will get a listing of one week of meals. Ask the students to review the foods and make new titles for the names of the foods on the menu to reflect the process of food production. For example, call spaghetti "sun ripened tomato sauce over sugar storage wheat noodles," etc. Share the menu titles with the director, so that the next menu may be printed with some of the class suggestions.

- Review the school lunch and/or breakfast menus looking for foods made from wheat and rice. Based on what you find on the menu, would you conclude that our staple grain is wheat or rice? Ask the Food Service Director to serve a rice dish and celebrate rice, the major staple grain of Asia.

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Peer Help

- Conduct selected science experiments listed in "Further Investigations" with some of the primary grades. Coordinate with the primary teachers when their classes are studying plant life. Have the older and younger students work together to grow their own plants under experimental conditions.

- Go to the school library and find picture books about how plants make food. Read the book to the younger children in the appropriate grade for the book selected. Some suggestions are:
  A Book of Vegetables by Harriet L. Sobol
  Happy Veggies by Oda Mayumi
  Freddie's Spaghetti by Charlotte Doyle

Further Investigations
Science

- Look at the chloroplasts in green plants under a microscope. Have your students describe in one sentence what they see (packed, tiny green discs)

- Carbon dioxide gets into a plant through tiny pores called stomata. These pores are located on the under surface of the leaves. Investigate the stomata using a hand lens or microscope. Water travels up a plant's stem and across the leaves in tiny veins. Again, look closely at these.

Slide preparation may be difficult. Consider borrowing a prepared slide from the high school or purchasing a prepared slide from a science catalog. Refer to the resource list.

- Sugar Science: Photosynthesis to Food is a computer software package that illustrates the process of photosynthesis and respiration as well as the role of plants in the food chain. In addition, this interactive software program provides excellent experiments on sugars functional role in food processing. Students will control experiments and investigate changes in products when different variables are used. The program is available in the following formats: Apple IIe, Apple IIGS, IBM, and Macintosh. The software includes a user's guide and a teacher's manual with objectives, definitions, explanations for the experiments, additional data, and extension activities for students. Target audience is upper elementary/middle school-grades 6-9. Cost: $39.95. Available from The Sugar Association, Inc., 1101 15th Street, N.W., Suite 600, Washington, D.C. 20005. (202)785-1122 or Fax 202/785-5019.

- Create an experiment with four vegetable plants. Provide one plant with sunlight, air and water. Give another everything but sunlight, another everything but air, and the last everything but water. Predict what will happen to each. Observe and record observations. Compare observations to the prediction.

Social Studies / Environmental Concerns

- It is estimated that 100 billion tons of carbohydrates are formed each year through photosynthesis. There is some concern that changes in the ozone layer above the earth might interfere with photosynthesis and reduce the amount of carbohydrates produced. Challenge your students to find out more about this issue and what can be done to preserve the ozone layer.

- Most societies have a staple grain that provides most of their people's food energy. In Asia the staple grain is rice. In Canada, the US., and Europe, the staple grain is wheat. Ask your students to research why the growing conditions are better suited for one grain over another in these geographical locations. How many foods can your students name or find that are made from wheat? Start a class list on chart paper and add to it as new discoveries are made.

Taking It Home

Students should identify a place at home (inside or outside) where plants might grow. If herbs are available, give students samples to try to grow at home.

Resources (see Resource List for description)

Sugar Science: Photosynthesis to Food produced by The Sugar Association
Blue Potatoes, Orange Tomatoes by Rosalind Creasy

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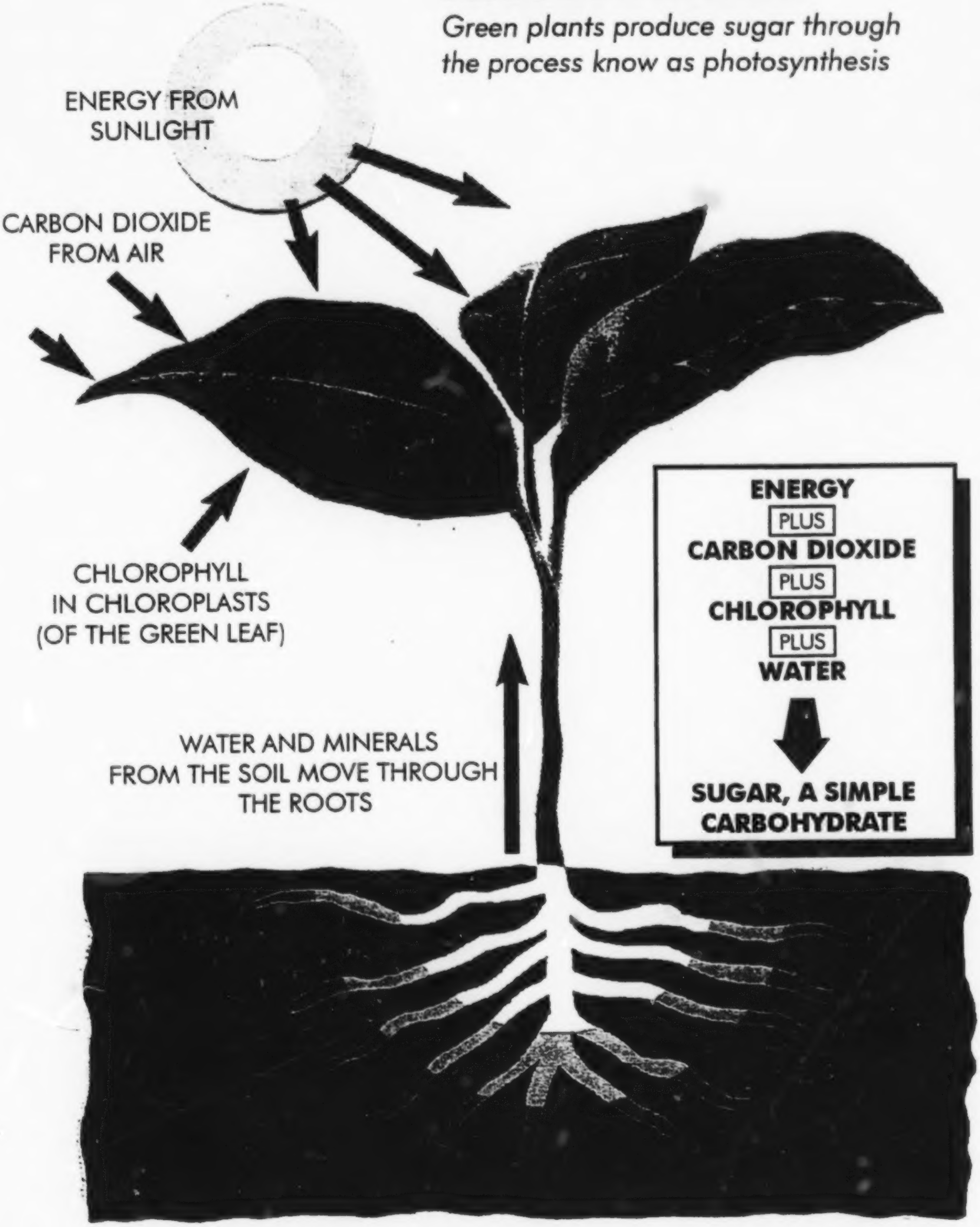
PHOTOSYNTHESIS

Green plants produce sugar through the process know as photosynthesis


ENERGY FROM SUNLIGHT
CARBON DIOXIDE FROM AIR
CHLOROPHYLL IN CHLOROPLASTS (OF THE GREEN LEAF)
WATER AND MINERALS FROM THE SOIL MOVE THROUGH THE ROOTS
ENERGY
PLUS
CARBON DIOXIDE
PLUS
CHLOROPHYLL
PLUS
WATER
SUGAR, A SIMPLE CARBOHYDRATE

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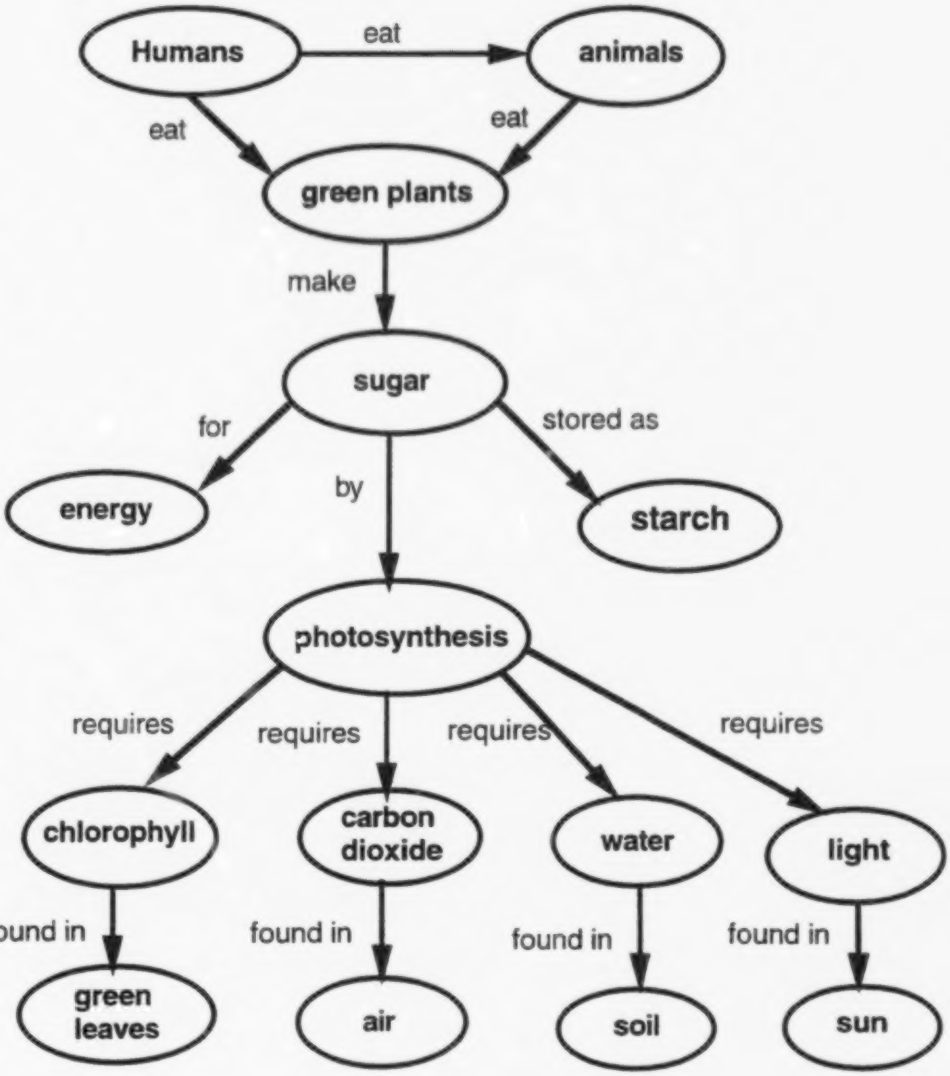
Food Energy Concept Map
Answer Key

Use the concept words on the left to fill in the empty bubbles in a meaningful way. Each concept will be used only once. Three bubbles have already been filled in for you. Then finish the sentence at the bottom of the page.

- ~~air~~
- ~~animals~~
- ~~carbon dioxide~~
- ~~chlorophyll~~
- ~~energy~~
- ~~green leaves~~
- ~~humans~~
- ~~light~~
- ~~photosynthesis~~
- ~~plants~~
- ~~soil~~
- ~~starch~~
- ~~sugar~~
- ~~sun~~
- ~~water~~


Humans
eat
animals
eat
eat
green plants
make
sugar
for
stored as
by
energy
starch
photosynthesis
requires
requires
requires
requires
chlorophyll
carbon dioxide
water
light
found in
found in
found in
found in
green leaves
air
soil
sun

Our food supply depends on sugar (or plants or photosynthesis)**.**

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Food Energy Concept Map

Name: ______________ **Date:** ____________________

Use the concept words on the left to fill in the empty bubbles in a meaningful way. Each concept will be used only once. Three bubbles have already been filled in for you. Then finish the sentence at the bottom of the page.

air

animals

carbon dioxide

chlorophyll

food

green leaves

~~humans~~

light

~~photosynthesis~~

plants

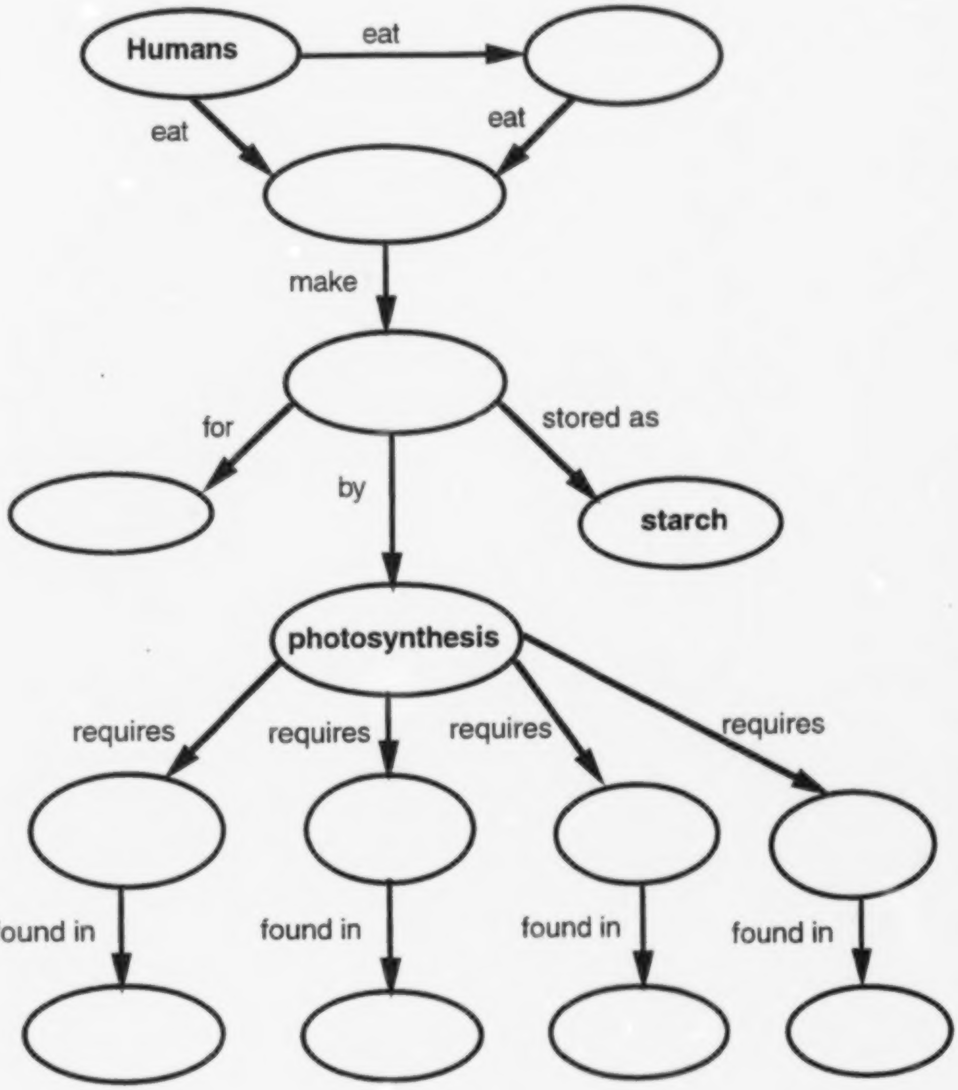
soil

~~starch~~

sugar

sun

water



Humans
eat
eat
eat
make
for
stored as
starch
by
photosynthesis
requires
requires
requires
requires
found in
found in
found in
found in

Our food supply depends on ____________________________.

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PENNSYLVANIA'S ENERGY CONTRIBUTIONS N.E.W.S. (NORTH, EAST, WEST, AND SOUTH)

lesson 25

Grades 4 – 6 "Energy Choices"
Curriculum Connection: Social Studies
Instructional Time: 30 minutes/part (2 parts)
Student Vocabulary: agriculture, county, food origins, commodity

NUTRITION OVERVIEW

The students will learn that some commonly consumed foods are locally grown or produced. Students will appreciate the role of their community in producing foods for healthy diets.

OBJECTIVES

The student will trace selected foods back to their original sources following a video presentation.

The student will locate the counties of Pennsylvania in which selected foods are grown or produced.

The student will summarize agriproducts produced in his or her home county.

The student will specify food origins and place the foods in the appropriate category of the Food Guide Pyramid.

MATERIALS

"Farm to Food" videotape (included with curriculum)
Six Pennsylvania Production Maps (at the end of the lesson)
Pennsylvania County Map (at the end of the lesson)

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INFORMATION FOR TEACHERS

- Many children have difficulty tracing a food back to its agricultural origin.

- Pennsylvania agribusiness grows and produces products for the state as well as the nation.

- Pennsylvania manufacturers produced 72.8 million gallons of ice cream in 1994, second nationally to California's 111.5 million gallons.

- An estimated 43,000 gallons of maple syrup were produced in Pennsylvania in 1995. The following states including Pennsylvania produced the U.S. maple syrup crop valued at $25.5 million: Vermont , Connecticut, Maine, Massachusettes, New Hampshire, Michigan, New York, Ohio, and Wisconsin.

- Pennsylvania ranks 25th in the nation for honey production. Honey producers received an average price of 58 cents per pound for the 1994 crop. The average yield was 47 pounds of honey per colony.

- Pennsylvania is fourth in the nation's ranking in milk production. California is first, followed by Wisconsin, then New York. The 1994 average milk production per cow was 16,009 pounds for the year. This would supply a family with 37 gallons of milk each week!

- Hershey Foods Corporation's main chocolate producing plant is housed in Hershey, Pennsylvania. Here, about 50,000 cows are needed to provide enough milk for one day's production of products. These cows produce 1.5 million pounds or 700,000 quarts of milk every day. Each day, 33 million Hershey's Kisses$^{\text{TM}}$ can be produced. Surprisingly, it takes about 10 days to make a Hershey's Milk Chocolate Bar$^{\text{TM}}$. Hershey's number one selling product is Reese's Peanut Butter Cups$^{\text{TM}}$.
(Source: Hershey Foods Corporation's web page : http://www.hersheys.com)

STEPS TO FOLLOW

1. Explain that "Farm to Food" is a video presentation (narrated by children) on the agricultural commodities of Pennsylvania and where these foods fit on the Food Guide Pyramid.

2. Show the video, which runs for approximately 11 minutes. Each food group segment is about two to three minutes.

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3. Using the six state maps labeled Pennsylvania Production, help your students learn how to use the key to find major crops and how to locate the counties of major crop production on the maps. The foods highlighted on the maps are the major foods produced in Pennsylvania. The counties in which the foods are placed are the major production sites.

4. Explain that a county is a subdivision within a state. Pennsylvania has 67 counties. A map with county names is included to familiarize students and facilitate discussion. Ask a student to identify the county on the map in which he/she lives and to name the county.

ask

5. Locate your home town on the map and put a star there. Color in the county in which your town is located. Repeat on each production map.

Review cardinal (N, S, E, W) and intermediate (NE, SE, NW, SW, etc.) directions with your students.

6. Label the top, bottom and sides of the production maps north, east, west, and south using N, E, W, and S. For each agricultural product, have the students decide if the production is in your county, north of the county, east of the county, etc.

   On another piece of paper have your students (or small groups of students) write a one sentence summary of each agriproduct's location in relationship to your county. For example, if you live in Centre County the student would write, "Wheat is grown in the counties southeast of Centre County, Pennsylvania." Or, "Oats are grown in the counties southwest of Centre County, Pennsylvania."

7. When students have completed all the maps, ask them to summarize what agricultural items are produced in their home county.

ask

EXTENSIONS

Bulletin Board Idea

Post a county map of Pennsylvania and identify the areas where there is corresponding agribusiness. Have the students draw the symbols to represent the agriproducts.

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Students may draw the symbols on the map or draw on separate paper, cut out, and attach to the map. Title the board "'Thanks, Pennsylvania'! You Help Energize Us!"

Careers

Agribusiness
Cook
Grocer
Transportation
Food Processor
Cooperative Extension agent
Farmer
4-H Club Member

Class Projects

- Invite someone from your county Cooperative Extension agency to visit your classroom to explain the role of Cooperative Extension in the community.

- Take a field trip to a local food production plant or food distribution warehouse.

Food Service Cooperation

- Have a "Let's Salute Pennsylvania Agriculture Day" in the cafeteria. Ask the Food Service Director to plan a menu with only foods produced in Pennsylvania. Since our state produces foods from all the major food groups, this should be easy. To really hit home, select a few foods that are produced in your county.

- Barley is a grain grown in Pennsylvania that is not commonly used for food. (Most barley is used to make beer.) Ask the Food Service Director to prepare a food made with barley. A possibility would be beef and barley soup.

- Investigate a local food cooperation that distributes locally grown foods. Invite small groups to discuss local, sustainable agriculture to the class.

Further Investigations
Science

- Mushrooms are a vegetable that grow without light. Pennsylvania ranks first in the nation in mushrooms produced. What can your students find out about Pennsylvania mushroom production? Have students investigate mushroom growth and how photosynthesis may or may not play a role and why.

- Citizens of Pennsylvania were surprised to find a new type of lady beetle in their state for the first time in 1994. The new "Asian" lady beetles were imported and released by federal experts in several Eastern states between 1978 — 1981. The Asian lady beetle is expected to become a permanent, welcome resident of Pennsylvania, helping to destroy harmful insect pests that damage vegetables and fruits. Get the students' opinion on this natural method of pest control. Generate a discussion that branches out to other areas of organic farming.

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Social Studies

- Most societies have a staple grain that provides the majority of their people's food energy. In Asia the staple grain is rice. In the U.S., Canada, and Europe it is wheat. Have your students research the differences in growing and producing rice and wheat. Why are we a wheat-dependent nation? How many common food products can your students find made from wheat? What about other food products made from common grains such as oats, rye, corn, etc.?

Taking It Home

Ask the students to review their family's grocery list with a member of their family. Are there foods on the list that are produced in Pennsylvania?

Taste Test

If you have local food production facilities in your area, bring in a sample of the food and have a taste test. Some producers might donate the foods.

ALLERGY CAUTION!

Reference for maps and crop statistics: 1992-93 and 1994-95 Statistical Summary and Annual Report, PA Department of Agriculture, National Agricultural Services, USDA/PA and 1987 Census of Agriculture County Data.

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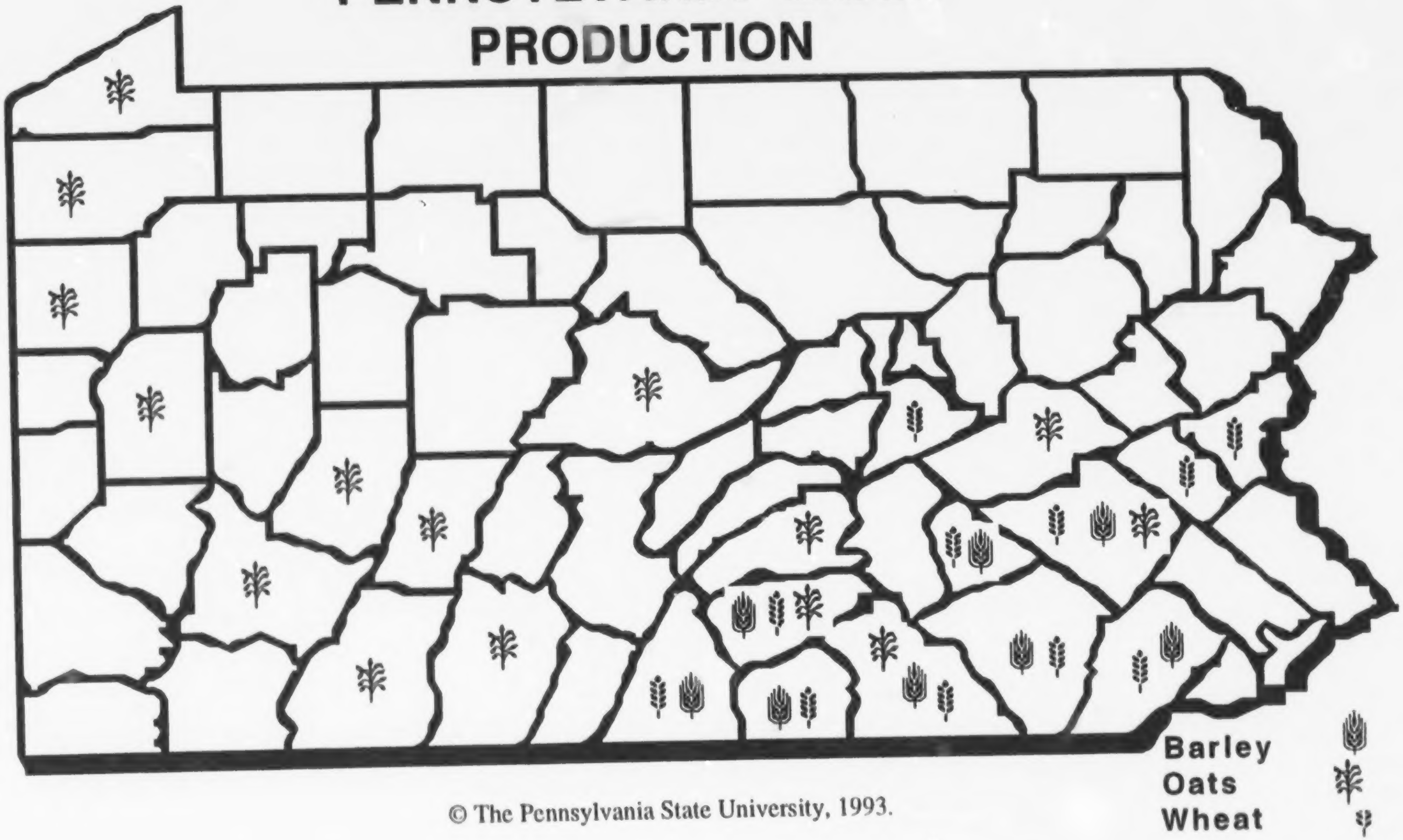
FROM FARM TO FOOD

PENNSYLVANIA GRAIN PRODUCTION



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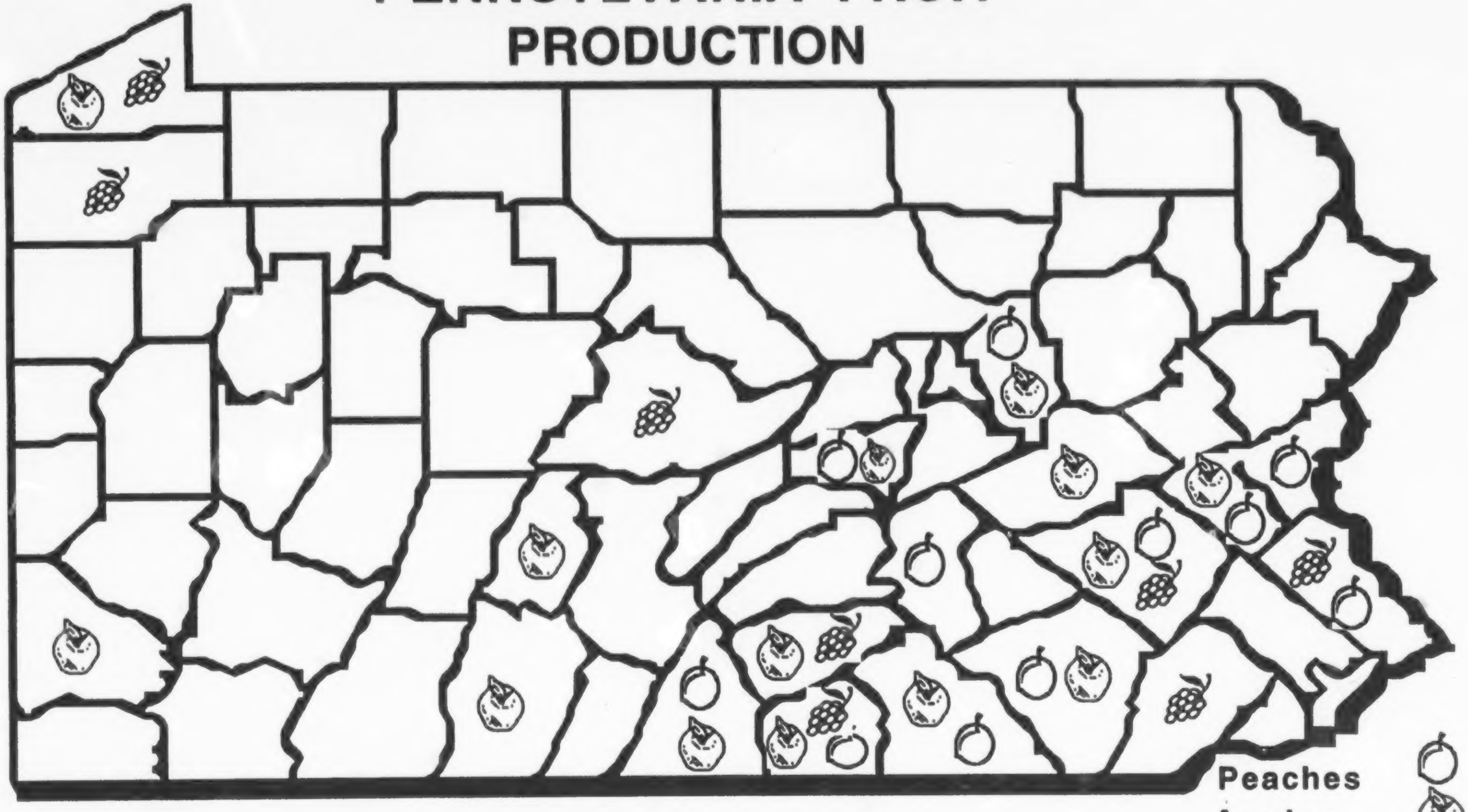
FROM FARM TO FOOD

PENNSYLVANIA FRUIT PRODUCTION



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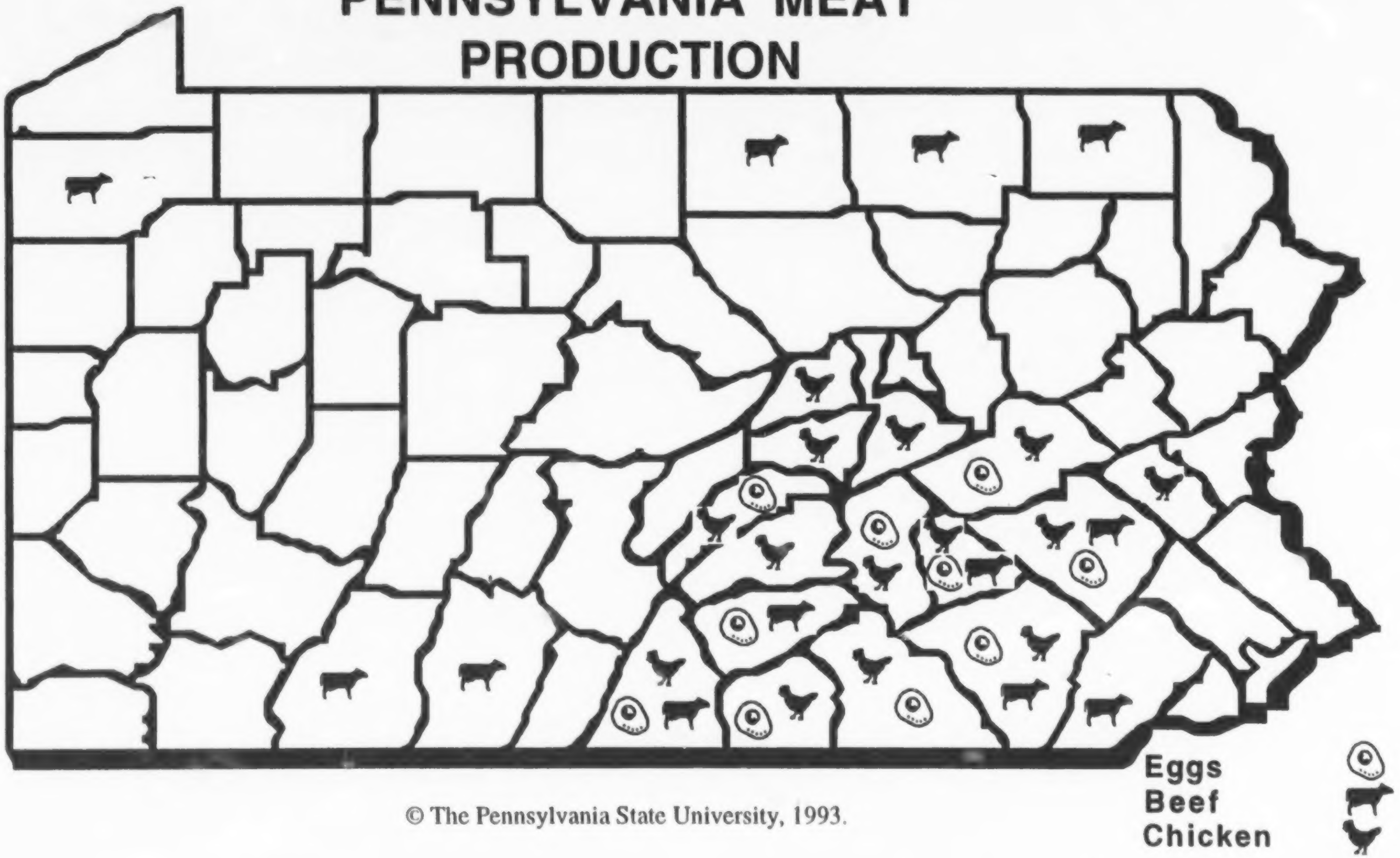
FROM FARM TO FOOD

PENNSYLVANIA MEAT PRODUCTION



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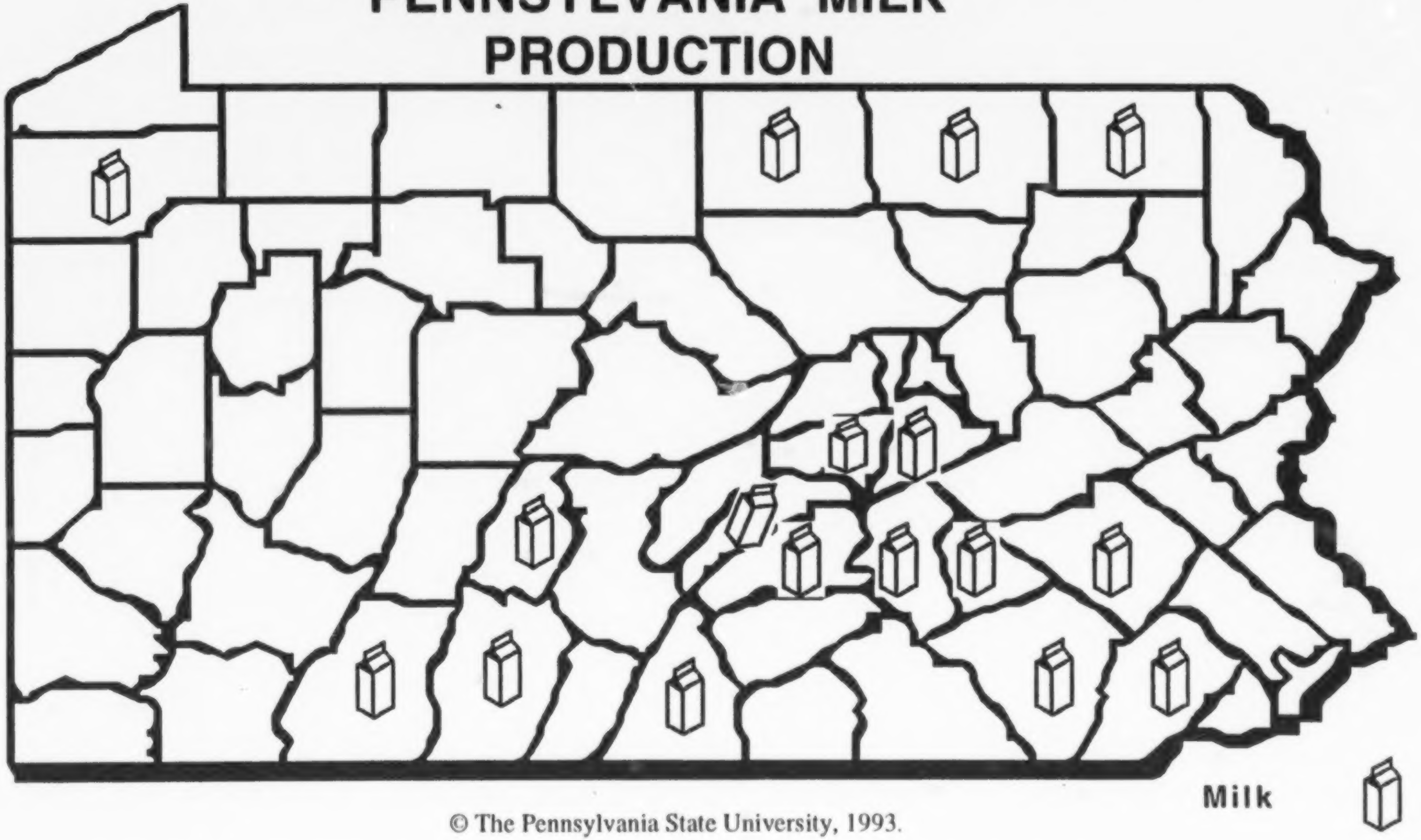
FROM FARM TO FOOD

PENNSYLVANIA MILK PRODUCTION



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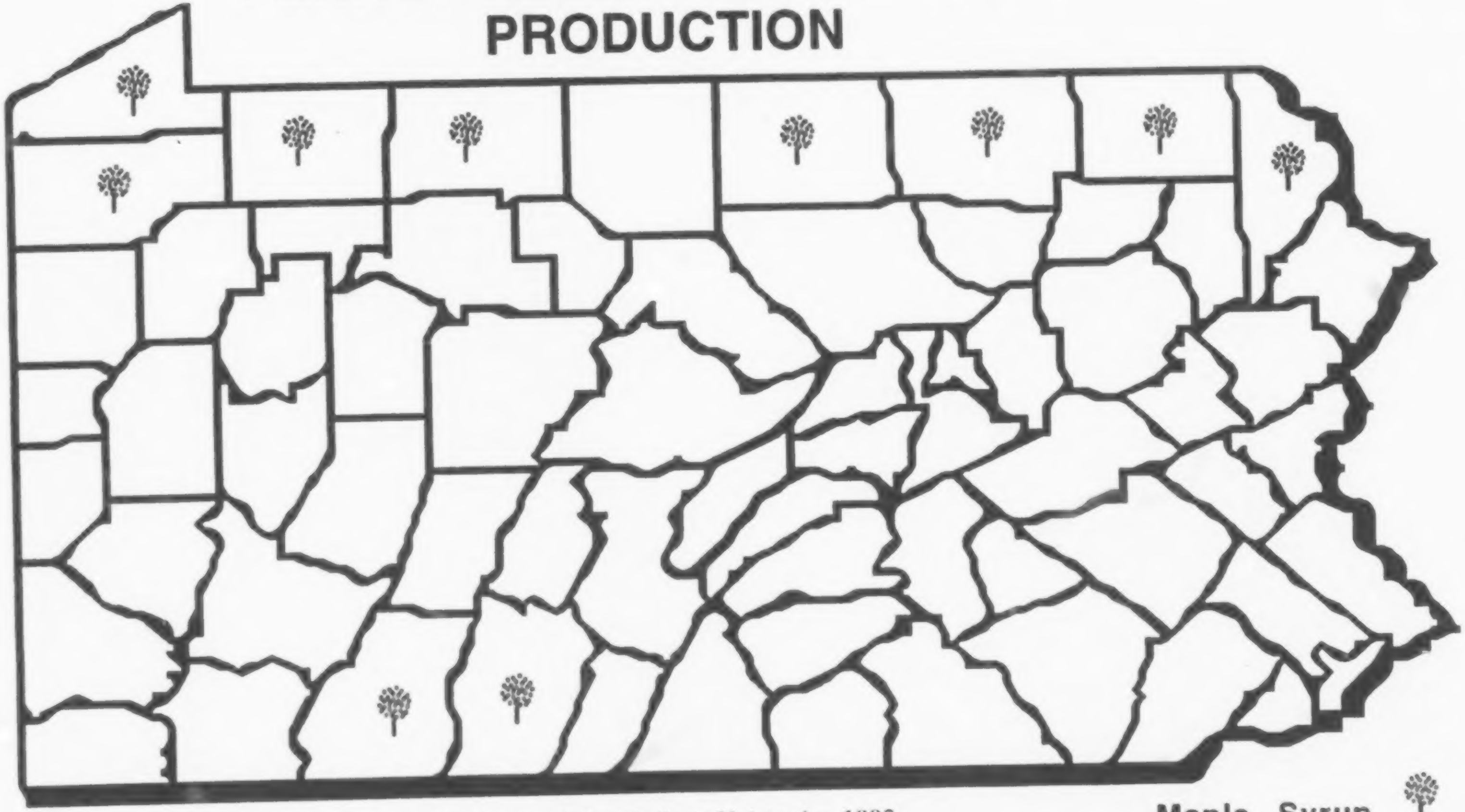
FROM FARM TO FOOD

PENNSYLVANIA MAPLE SYRUP PRODUCTION



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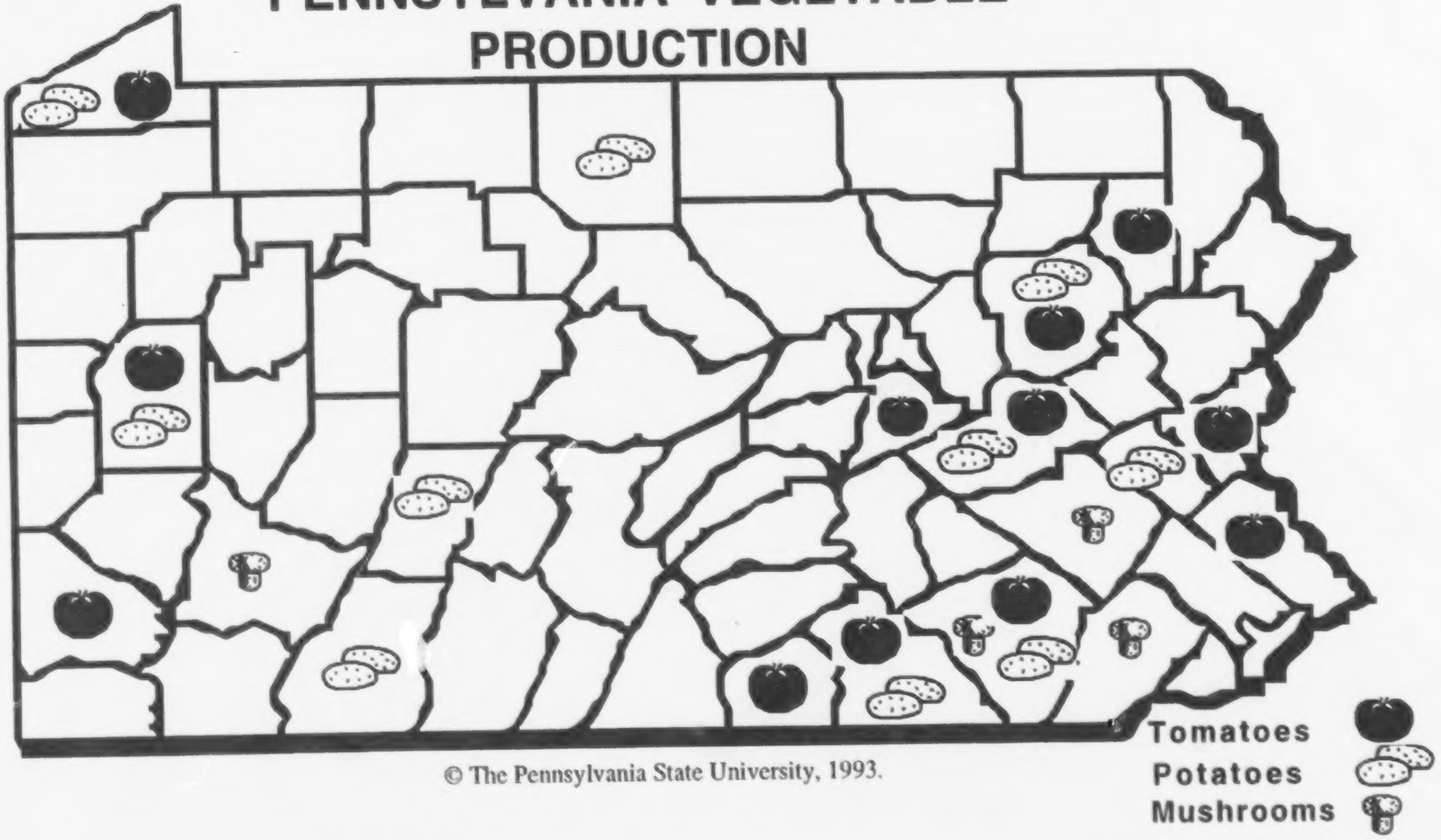
FROM FARM TO FOOD

PENNSYLVANIA VEGETABLE PRODUCTION


Tomatoes
Potatoes
Mushrooms

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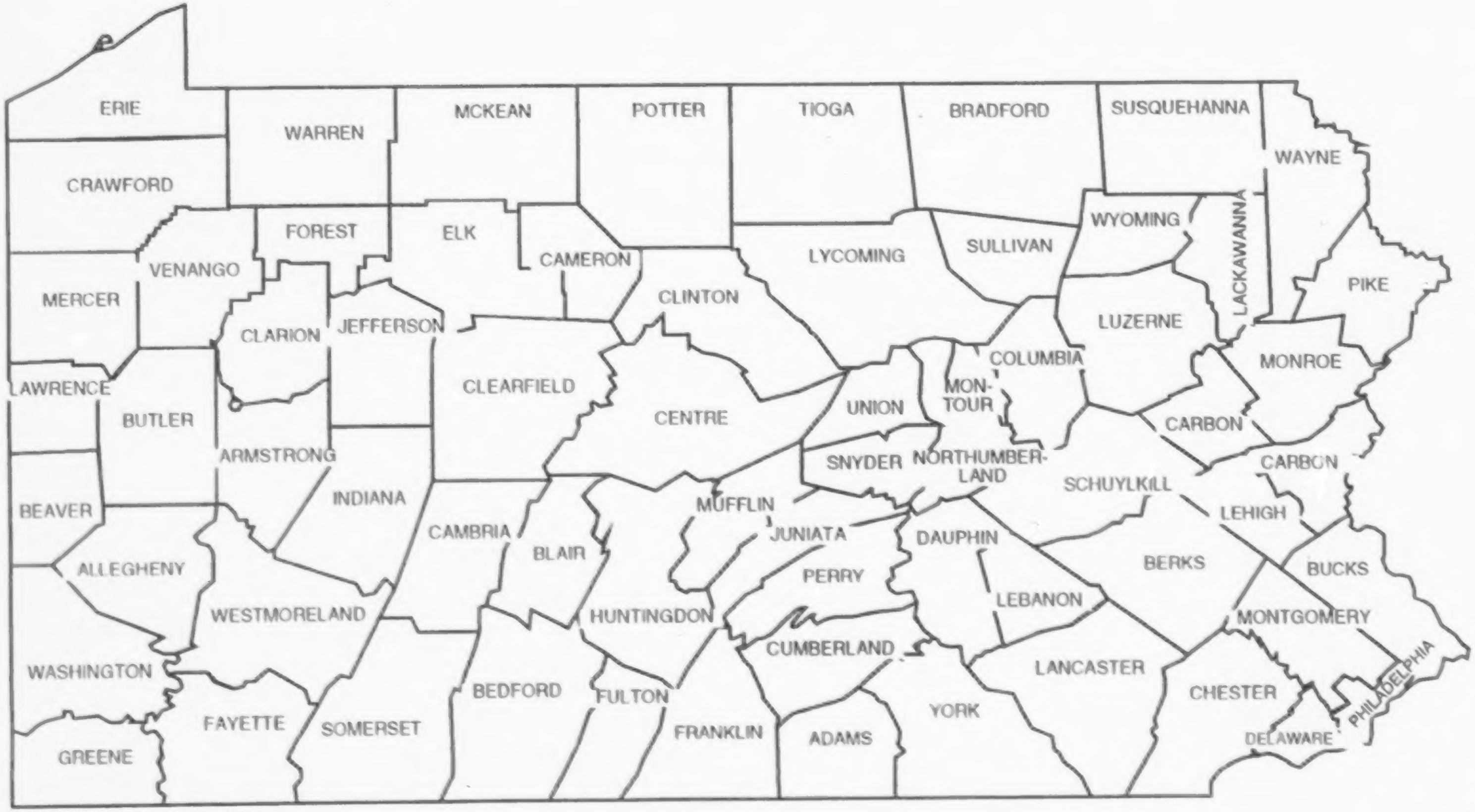
Pennsylvania County Map


ERIE
WARREN
MCKEAN
POTTER
TIOGA
BRADFORD
SUSQUEHANNA
WAYNE
CRAWFORD
FOREST
ELK
CAMERON
LYCOMING
SULLIVAN
WYOMING
LACKAWANNA
PIKE
MERCER
VENANGO
CLINTON
LUZERNE
CLARION
JEFFERSON
COLUMBIA
MONROE
LAWRENCE
BUTLER
CLEARFIELD
CENTRE
UNION
MON-TOUR
CARBON
ARMSTRONG
INDIANA
SNYDER
NORTHUMBER-LAND
SCHUYLKILL
CARBON
BEAVER
MUFFLIN
LEHIGH
CAMBRIA
JUNIATA
DAUPHIN
ALLEGHENY
BLAIR
PERRY
BERKS
BUCKS
WESTMORELAND
HUNTINGDON
LEBANON
MONTGOMERY
CUMBERLAND
WASHINGTON
BEDFORD
FULTON
LANCASTER
CHESTER
PHILADELPHIA
FAYETTE
SOMERSET
YORK
FRANKLIN
ADAMS
DELAWARE
GREENE

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WHAT ARE CALORIES?

Lesson 26

Grades 4-6 "Energy Choices"
Curriculum Connection: Science
Instructional Time: 45 minutes
Student Vocabulary: calorie, energy, approximate, bomb calorimeter, oxygen, kilocalorie, Centigrade, Fahrenheit

NUTRITION OVERVIEW

Many Americans count calories everyday. In this lesson, students will learn that calories are a measure of energy. Prior to presenting this lesson to your class, do the experiment (burning a peanut) yourself to verify the results.

OBJECTIVES

The student will utilize a bomb calorimeter to determine the caloric content of food.

The student will estimate the caloric content of a peanut by burning the peanut and measuring the amount of heat produced.

The student will define calories as a measure of food energy.

MATERIALS

scrap of paper (to lay under the equipment)
ring stand
ring clamp
thermometer (Centigrade)
large metal can (approximately 28 ounces)
one liter of water (room temperature)
needle
cork
aluminum foil
one peanut (fresh from the shell)
matches (have plenty available)

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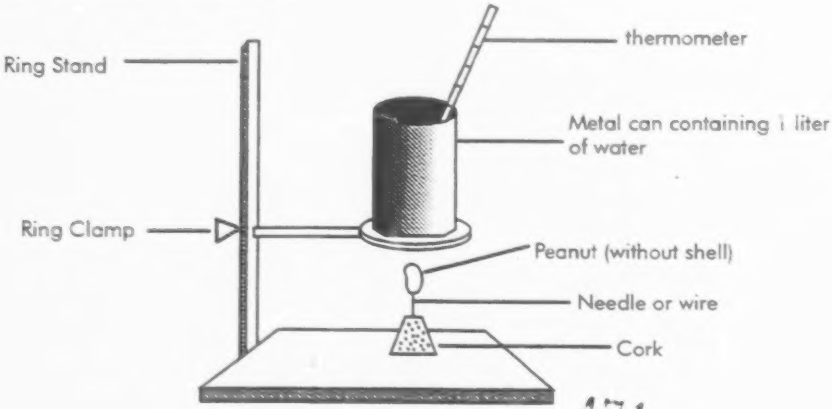
INFORMATION FOR TEACHERS

- See "Scientific Caution" in the introduction of this unit.
- Energy from food is measured in calories.
- A kilocalorie is the amount of heat necessary to raise the temperature of a kilogram of water (one liter) one degree Centigrade. In common usage, the word "calorie" is used to mean kilocalorie. To be accurate, the word "Calorie" should be capitalized when used with absolute values (e.g. ten Calories) to indicate that it is substituting for the term "kilocalorie."
- Calories are necessary for life.
- The word "calorie" has a negative connotation to most people, while the word "energy" is usually positive. Use the word energy in place of calories when describing food energy, but emphasize to the students that the terms mean the same thing.
- Calories in food are measured in an instrument called a bomb calorimeter. A dried, weighed sample of food is put in an insulated container that has one liter of water surrounding it in a chamber. The food is ignited and allowed to burn completely. The number of degrees the temperature of the water is raised is the number of calories contained in the food.
- Food companies send three samples of each food product to a lab where the food is analyzed for calories and other nutrients. The average of these values from each of the three samples is used for food labeling purposes.
- A gram of carbohydrate and a gram of protein each contains 4 Calories. A gram of fat contains 9 Calories.



See "Scientific Caution" in the introduction of this unit.

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STEPS TO FOLLOW

1. Play a word association game with the students. Ask students to write down on a scrap of paper the first word that comes to mind when you say a given word. Begin with a warm-up word like "winter" or "holiday" and progress to the two key words of this lesson: "calorie" and "energy." Ask students to share their responses and write them on the board.

ask

2. When responses for both "energy" and "calorie" have been written on the board, ask students whether one of the words is viewed more positively than the other, and if so, why? Explain that calories and energy are the same thing.

ask

3. Set up the experiment demonstration materials. Stick the dull end of the needle into the cork so the needle point is straight up. Carefully stick the peanut onto the sharp end of the needle. Place the cork and peanut on the base of the ring stand. Make sure the ring stand is positioned close enough to the bottom of the can so that the flame will reach.

4. Pour one liter of water into the large metal can. Cover the can with aluminum foil. Poke the thermometer through the foil and into the water. Hold in place—do not allow the thermometer to rest on the bottom of the can. Prior to lighting the peanut, read the water temperature in degrees Centigrade and ask a student volunteer to record the water's temperature on the blackboard.

Do this experiment as a demonstration for your students. Mark off boundaries around the area in which you set up the experiment with tape. Inform students that they are not to cross over this boundary. Caution them about the open flame. Have an extra can of water or fire extinguisher available. See "Scientific Caution" in the Introduction of this unit.

5. To ignite the peanut, light a match and hold the flame under the peanut until it is engulfed in flames (it may take 5 to 10 seconds). Make sure that the burning peanut is directly under and as close to the can as possible. Every 30 seconds, check the temperature of the water. Immediately after the peanut burns out, read the temperature in degrees Centigrade and ask a volunteer to record the temperature on the blackboard.

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6. Instruct students to subtract the first water temperature reading (recorded before burning) from the second reading (taken after burning). The difference will equal the amount of energy (calories) contained in the peanut. Note: Some heat will be lost to the ring stand, can and air and will not be measured. This means that your calorie count will be slightly lower than the actual caloric value for the peanut (which is about 7 Calories). The expected change in temperature (caloric value) of the water is 4 to 5 degrees. The peanut burns approximately 2-3 minutes.

7. Ask students to define calories (the measure of energy in foods). Remind them that the words "calories" and "energy" are synonymous.

ask

8. Explain that all foods provide energy, but some foods provide more energy than others. Energy is important because it allows us to sleep, breathe, run, play, and do all the other things we do each day.

EXTENSIONS

Careers
Food Scientist
Food Technologist
Dietitian

Class Project
Go on a field trip to a food manufacturer or laboratory that has a bomb calorimeter. Ask for a demonstration.

Put a jar of peanuts on the shelf. Ask the students to guess how many calories are in the jar and write their estimate on a piece of paper along with their name. Count the peanuts and then multiply by 7. (A peanut yields approximately 7 Calories.) The student closest to the correct answer may keep the peanuts.

Food Service Cooperation
Ask the Food Service Director to display the calories for each meal and/or meal item.

Taking it Home
Knowing that a peanut has about 7 Calories, ask a family member to take a handful of peanuts and guess the calories. Count the peanuts and multiply them by 7. Inform the family member of the number of calories.

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CALCULATING CALORIES

lesson 27

Grades 4-6 "Energy Choices"
Curriculum Connection: Mathematics
Instructional Time: 25 minutes
Student Vocabulary: calorie, gram, approximate, rounding, carbohydrate, protein, fat

NUTRITION OVERVIEW

Americans have started reading food labels to aid them in making informed choices. Students will learn how to read food labels and compare calories, carbohydrate, protein and fat content.

OBJECTIVES

The student will identify the nutrients that provide energy to the body .

The student will calculate the total number of calories in a food based on the grams of the energy-yielding nutrients in the food listed on the food label.

MATERIALS

food label - have each student bring back one milk carton from lunch
sheet of paper (1 per student)
Calculating Calories worksheet (at the end of this lesson)
Note: The worksheet requires the "Nutrition Facts" panel from skim, 1%, 2%, and whole milk. The nutrition information needed is provided so that the lesson can be completed, in the event all types of milk are not available. Chocolate milk is not discussed.

INFORMATION FOR TEACHERS

- Carbohydrate, protein, and fat are the three energy-yielding nutrients in food.
- Information on the amount of carbohydrate, protein and fat in foods is listed on food labels. The amounts are listed in grams.
- Each gram of carbohydrate and protein provides 4 Calories. Each gram of fat

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provides 9 Calories, more than twice the amount of calories from carbohydrate and protein. Thus, fat is a more concentrated source of energy.

- Carbohydrates are the human body's preferred energy source. There are two main classifications of carbohydrates. Starch and fiber are referred to as "complex." Complex carbohydrates are predominantly found in breads, cereals, rice, pasta, vegetables, and dry beans. Sugar is the other main classification of carbohydrates. Most sugars are only one or two molecule units, hence the popular term "simple sugars." Sugars are predominantly found in fruit, milk and the tip of the pyramid.

- Both starch and sugar provide energy. Energy from fiber is negligible since very little is digested.

- Although protein is a source of energy, it has the unique function of building and maintaining cells. Therefore, enough carbohydrate and fat should be eaten to spare protein for growth and maintenance rather than as a source of energy.

- Fat is an essential nutrient and should be included in the diet. Fat also provides energy, but for health reasons such as cardiovascular disease and cancer, it should not be the predominant source of food energy.

- More energy from fat, carbohydrate, or protein than the body can use is converted to fat and stored in the body.

STEPS TO FOLLOW

1. Direct each student to look at the carton of milk brought back to the classroom from the cafeteria. Ask what nutrition information they think people look for first on a food label and why. (Most will answer calories or fat and the reason is weight control. Ask if weight control should be the most important reason. Emphasize that overall health should be the most important reason.) Take a minute to solicit other reasons people might read a food label (food allergies, amount of fiber or cholesterol, etc.).

2. Instruct students to locate the word "calorie" on the food label. Ask the students why calories are listed. Ask what calories do for our bodies. (Calories are the potential energy the body can receive from a food. Explain that our bodies use food for energy to maintain all bodily functions both voluntary and involuntary; in other words, to move, act, grow, and mend from an injury.)

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3. Explain that most food products, once eaten and the nutrients are absorbed into the bloodstream, give us energy to run, sleep, and even sit in class. Ask what substances in food provide energy. List the student responses on the chalkboard (give hints as needed until students have correctly identified carbohydrate, protein, and fat). When the list is complete, circle and draw attention to "carbohydrate," "protein," and "fat." These are the three nutrients in food that supply the body with energy. Explain that vitamins (like vitamin A or vitamin C) and minerals (like calcium and iron) may be present in the foods, but they do not yield energy. Instead, vitamins and minerals are like keys that help unlock the energy. Fiber and cholesterol are words on the label the students may be familiar with, but neither of these provides energy.

4. Ask students what protein does for our bodies. Explain that our bodies are made up of protein. Our bodies are always in a dynamic state, tearing down old cells and building new ones, so protein is always needed to build and repair the body. However, we grow slower than we move, so we need more of the energy nutrient (carbohydrate) than we do of the growing nutrient (protein).

5. Ask a student to share the number of calories per serving listed on their milk carton. Define serving size, if necessary. Instruct students to locate the words "carbohydrate, protein, and fat" on their food labels. Ask what unit is used to measure carbohydrate, protein, and fat. Help the students visualize a gram by stating that a paper clip weighs one gram (and a nickel weighs 5 grams). Demonstrate with a balance scale and weights, if possible.

6. Direct students to the *Calculating Calories* worksheet in which they will find the energy nutrients and their weights in grams as listed on the milk carton.

	cals	CHO(g)	PRO (g)	FAT (g)
whole milk	150	12	8	8.0
2%	130	12	8	5.0
1%	110	13	8	2.5
skim	90	12	8	0.5

Explain that each gram of carbohydrate and protein contains approximately 4 Calories each and that each gram

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of fat contains approximately 9 Calories. The worksheet directs the students to do the following:

1. Multiply the number of grams times the calories per gram to find the number of calories from each energy source. Example: Skim milk

12 g CHO	8 g PRO	.5 g FAT
x 4 cal/g	x 4 cal/g	x 9 cal/g
48 cal CHO	32 cal PRO	4.5 cal FAT

Write the example of skim milk on the chalk board.

2. Then the students add the calories from each energy source to find the total number of calories in the milk.

48 + 32 + 4.5 = 84.5 cals

3. Finally, the students will compare the total calories on the label with their calculation.

# of cals on label = 90 cals
# of cals with calculation = 84.5 cals

ask

Ask the students if the number listed on the label is rounded up or down (rounded up). Explain that differences may be due to the approximate nature of the calorie value per gram and to the manufacturers' tendency to round up or down. The value used by the manufacturer is derived more directly through bomb calorimetry as demonstrated in lesson 26.

7. Explain that all foods provide energy, but some foods have more than others. Compare the difference in the calories between the various milk cartons (skim, 1%, 2%, and whole milk) in the room. What accounts for the difference? (fat). Explain that drinking 1% or skim milk, instead of higher fat milk, is a way to decrease fat in the diet. Lowfat diets are associated with lower rates of heart disease, obesity and cancer. However, children under the age of two should not be given lowfat or skim milk to ensure adequate calories and fat are consumed to support rapid growth and brain development the first two years of life.

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Note: Chocolate milk is not included in this exercise because we are comparing differences in fat content only. Chocolate milk varies in both sugar and fat content.

8. **Optional**: Provide a quick visual demonstration on the differences between skim, 2% and whole milk due to fat. Turn skim milk into 2% by dropping one pat of butter into a glass of skim milk. The fat and calories in the skim milk are now like 2%. Convert skim milk to whole milk by dropping two pats of butter in. The fat and calories of the skim milk are now similar to whole milk. Have the students determine how much butter it takes to make skim milk into 1% (it takes 1/2 pat of butter). Explain to students that we often consume more fat than we realize because it's hidden (vs. visible)—fat we can't see or feel the grease on our fingers. Other examples of hidden fat are cheese (1 ounce = 8 grams of fat or 2 pats of butter), ice cream (1/2 cup = 8 grams of fat), chocolate candy bar (12 grams of fat or 3 pats of butter).

9. Conclude by reiterating that energy from food is essential if we are to sleep, breathe, run, play, and do all the other things we do each day. Carbohydrates, protein, and fat all provide energy and are necessary for good health.

EXTENSIONS

Bulletin Board Idea

Display some food labels (Nutrition Facts). Divide the board into three segments — those foods with calories predominantly from carbohydrate, those predominantly from protein and those predominately from fat. Show calculations on the bulletin board.

Careers

Food Technologist
Food and Drug Administration Professional (who oversees food labeling)
Food Manufacturer
Dietitian

Class Project

Collect food labels from empty food packages. Start a file for the classroom to use in order to learn more about specific foods that are actually eaten by your students. Set up the file by food groups using the Food Guide Pyramid. When food packages are cut to be filed, be sure the student retains the name of the product, the nutrition facts, and the

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list of ingredients. Calculate the calories from carbohydrate, protein and fat on some of the food labels. How close do the total calories listed on the food label come to the students' calculations?

Food Service Cooperation

Ask the Food Service Director to display the food labels and nutrition information from the packages of the food being offered each day. Set up a bulletin board with some of the nutrition information of commonly eaten food products.

Taking It Home

Have the students select three food products in their kitchens that have Nutrition Facts on the label. Following the exercise in the lesson, have the students calculate calories from carbohydrate, protein and fat. The numbers should then be added together. Do the total number of calories match the number on the label? Have the students share their results with a family member.

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CALCULATING CALORIES

Name ______________________________ Date ________________

Fill in the blanks using the nutrition information on the milk cartons.

1. Whole milk: 1 cup = ________Calories

carbohydrate	protein	fat
_____ grams	_____grams	_____ grams
x 4	x 4	x 9

_____Calories + _____Calories + _____ Calories = _____ Calories

---

2. 2% Lowfat milk: 1 cup = ________Calories

carbohydrate	protein	fat
_____ grams	_____grams	_____ grams
x 4	x 4	x 9

_____Calories + _____Calories + _____ Calories = _____ Calories

---

3. 1% Lowfat milk: 1 cup = ________Calories

carbohydrate	protein	fat
_____ grams	_____grams	_____ grams
x 4	x 4	x 9

_____Calories + _____Calories + _____ Calories = _____ Calories

---

4. Skim milk: 1 cup = ________Calories

carbohydrate	protein	fat
_____ grams	_____grams	_____ grams
x 4	x 4	x 9

_____Calories + _____Calories + _____ Calories = _____ Calories

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CALCULATING CALORIES (ANSWER KEY)

Name ________________________________ Date________________

Fill in the blanks using the nutrition information on the milk cartons.

1. Whole milk: 1 cup = __150__ Calories

carbohydrate	protein	fat
12 grams	8 grams	3 grams
x 4	x 4	x 9
48 Calories +	32 Calories +	72 Calories = 152 Calories

2. 2% Lowfat milk: 1 cup = __130__ Calories

carbohydrate	protein	fat
12 grams	8 grams	5 grams
x 4	x 4	x 9
48 Calories +	32 Calories +	45 Calories = 125 Calories

3. 1% Lowfat milk: 1 cup = __110__ Calories

carbohydrate	protein	fat
13 grams	8 grams	2.5 grams
x 4	x 4	x 9
52 Calories +	32 Calories +	22.5 Calories = 106.5 Calories

4. Skim milk: 1 cup = __90__ Calories

carbohydrate	protein	fat
12 grams	8 grams	0.5 grams
x 4	x 4	x 9
48 Calories +	32 Calories +	4.5 Calories = 84.5 Calories

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ENERGY BOLTS!

lesson 28

Grades 4-6 "Energy Choices"
Curriculum Connection: Health/Mathematics
Instructional Time: 40 minutes (optional homework)
Student Vocabulary: variety, range, serving, minimum, maximum, satiety, gender

NUTRITION OVERVIEW

This activity will explore the recommended number of servings on the Food Guide Pyramid. The information will enable students to determine if they have met these recommendations.

OBJECTIVES

The student will make distinctions between the minimum, the maximum and the midpoint of recommended servings on the Food Guide Pyramid.

The student will determine if he/she has eaten the minimum number of recommended servings for one day by counting foods consumed for each food group.

The student will determine appropriate number of servings (of foods in each food group) based on multiple factors: age, gender (sex), size, activity level, and individual needs.

MATERIALS

Energy Bolts! worksheet (at the end of this lesson)
school breakfast and lunch menus
paper
pencil
colored pens, crayons, or markers
How Many Servings Do You Need Each Day? (at the end of this lesson); photocopy one per student or make into a transparency master if used with Approach B.
Optional:
Food Guide Pyramid poster (to obtain see Resource List)
food group lists (appendix A)
Pyramid Reference Sheet (at end of this lesson)

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INFORMATION FOR TEACHERS

- Foods are categorized into groups according to energy (calories) and overall nutrient composition. The foods in the five major food groups provide energy and other important nutrients such as Vitamins A, and C, copper, iron, zinc, calcium, etc. The foods in the tip of the pyramid provide mostly energy with few additional nutrients. This is why they are sometimes referred to as "empty calories."

- The Food Guide Pyramid shows a range of servings for each major food group. The number of servings that are right for an individual depends on his/her calorie needs. Calorie needs depend on age, gender, size, activity level, and individual needs (extra activity, rapid growth phase, etc.). Almost everyone should eat at least the lowest number of servings in a given range. The best way to gauge calorie needs is to respond to the body's signals of hunger and satiety (feeling of fullness).

- Children need about 2,200 Calories a day. To meet this, they should eat about the middle number of servings in the recommended range.

- Boys' calorie needs and recommended number of servings increase as they enter puberty and become teenagers. Girls' needs tend to stay at the midpoint. More food is needed by boys and girls during rapid growth phases, which vary between individuals, but generally occur sometime between ages 11-14.

- Although obesity is a major health problem affecting children in the United States today, it is not recommended that a child's food intake be restricted beyond what they would voluntarily choose for themselves. Rather, encourage physical activity and enable the child to make wise food choices.

STEPS TO FOLLOW

The *Energy Bolts!* worksheet can be used in a variety of ways. Two ways (**Approach A** and **Approach B**) are listed in the procedures that follow. We have not printed the directions on the student worksheet to give you flexibility to try our suggestion or create new uses.

The Energy Bolts! worksheet can be used to let the students assess whether they are:

- eating from all the food groups;
- eating the minimum number of servings recommended;
- eating within the range of recommended servings for a day;
- eating the specific number of servings recommended for children.

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Approach A

The following procedure can be used to teach that everyone should eat at least the minimum number of servings from each food group every day for adequate energy.

1. Have your students "independently" write down everything they eat and drink for one day Or a school menu may be cut apart so that each student uses different breakfast and lunch selections. Students can then create a "favorite" dinner and "favorite" snack. They should transfer this information to paper. Another option is to set up a "class" food intake record by creating a hypothetical list of foods and drinks based on the school breakfast and lunch menu and students' "favorite" dinners and "favorite" snacks. Ask each student to record this list on paper or you can write the list on the chalkboard for all the students to see.

ask

2. On the *Energy Bolts!* worksheet, the students will determine in which food group each recorded food belongs and what represents a serving. The food group lists and *Pyramid Reference Sheet* can help with this. Once they've decided, they will circle or color one "energy bolt" in the appropriate food group to represent that food. Explain that each "energy bolt" represents a serving of food.
3. Repeat this same procedure for the entire list of foods and drinks.
4. When all the foods and drinks are represented on the *Energy Bolts!* worksheet, the students can evaluate their food intake. The foods in the five major food groups provide energy plus the benefit of other essential nutrients. The foods in the tip provide mostly energy (calories) with few additional nutrients. Each time we eat food we have a choice— to get our energy from foods with energy and other nutrients, or just energy.

ask

5. Ask the students whether they consumed the minimum number of servings for each food group. If not, from which food group do they need more servings? Did they eat more than the maximum number of recommended servings for any food group? If so, what foods in that group could they eat less? Brainstorm ways to improve meeting at least the minimum number of servings from all the major food groups.

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6. Remind students that all the food groups work together to give us energy to run, play, sit and think as well as the nutrients to grow, keep us healthy and mend our wounds. It is important for almost everyone to consume at least the minimum number of servings each day.

Approach B

The following procedures focus on teaching the range of servings. *The How Many Servings Do You Need a Day?* chart can be photocopied for each student or made into a transparency master to help illustrate the function of the "range" of recommended servings.

1. Point out on the Food Guide Pyramid poster or model (from lesson 23) that the number of recommended servings for each day is listed as a range. Help your students understand the concept of range. Ask students to think about times in life in which we encounter ranges. (For example, elementary school is for grades K-6, a summer camp may allow only children ages 7 to 12 to attend, the stores at the mall are open from 10 a.m. to 9 p.m.) Review the minimum and maximum values of the recommended serving ranges. (For example the minimum age to attend summer camp is 7 years and the maximum age is 12 years. The earliest the stores at the mall open is 10 a.m.; the latest they stay open is 9 p.m.)

ask

2. Show the *How Many Servings Do You Need Each Day?* chart. Ask the students to study the chart to determine which factors are considered when trying to decide how many servings one should eat. Explain that the number of servings recommended depends on age, gender, size, activity level and individual needs (extra activity, rapid growth phase, etc.).

ask

3. Allow your students more time to look at the chart and then ask questions such as how many servings of milk should most children have a day (2), how many servings of bread should most older adults eat (6), and how many servings of vegetables should most teenagers and very active men eat a day (5). Continue asking questions until you are sure the students understand the chart.

ask

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4. As a class look at the *Energy Bolts!* worksheet together. Direct the students to the bottom food group of the Food Guide Pyramid on this worksheet — the Bread, Cereal, Rice, and Pasta group. Ask what the given range is (6 to 11). Ask what the minimum number of servings to eat in this range is (6). Ask what the maximum number of servings to eat is (11). Explain that the range does not mean that all people are to eat 6-11 servings a day. The number of servings within the range that is right for children is in the middle of the range (7 to 9).

ask

5. Instruct the class to color the first six "energy bolts" in the Bread, Cereal, Rice, and Pasta group one color i.e. red. Explain that the colored bolts represent the minimum number of servings that everyone should try to eat a day.

6. Color "energy bolts" 7 to 9 another color i.e. green. Explain that these additional servings are the midpoint and recommended for children like themselves. Have them recall (from step 1) when mall hours were used to explain range. Build on that to explain children's servings. For example, the mall is open from 10 a.m. to 9 p.m. but you are going to meet your family for dinner from 7 - 8 p.m. Your friends may have different arrangements (servings) depending on their age, gender, size etc.

Sixth grade students may understand ranges well enough to skip this. If fourth grade students have a problem understanding range, you may use this, or another, representation.

7. Finally, color "energy bolts" 10 and 11 another color i.e. blue. Explain that these are the additional servings recommended to meet the needs of teenage boys and active men. Note: Children who are highly active or entering a rapid growth phase may need serving amounts similar to this age group.

8. Based on the colors the class used to color in the minimum (6), midpoint (7-9) and maximum number of servings (11), make a key for the class to follow so all the bolts are consistent for each food group. The first color (red) is for all the bolts up to and including the minimum number of servings, the next color (green) is for all the bolts from the fewest to the midpoint (the recommended number of servings for children), and the last color (blue) represents extra servings up to the maximum. Have the students make their own key on the bottom of the *Energy Bolts!* worksheet.

9. Have the students complete the worksheet for all the food groups.

Bread: minimum - 6 servings
child's recommendation - 9 servings
maximum - 11 servings

Vegetables: minimum - 3 servings
child's recommendation - 4 servings
maximum - 5 servings

Fruits: minimum- 2 servings
child's recommendation - 3 servings
maximum - 4 servings

Milk: minimum - 2 servings
child's recommendation - 2 servings
maximum- 3 servings

Meat: minimum - 2 servings
child's recommendation - 2 servings
maximum - 3 servings

EXTENSIONS

Careers
Dietitian
Physician

Food Service Cooperation
Ask the Food Service Director to inform the class of the school's obligation to help the students meet their nutrient needs while at school. Explain that if the students eat what is offered at breakfast and lunch, then nearly two thirds of the nutrient recommendations should be met right here at school. (Breakfast meets one fourth of a child's daily needs and lunch meets one third.) Remind the students that what is thrown out is of no benefit to their health. If your Food Service Director desires, have her or him ask the students for suggestions to reduce plate waste in the school.

Invite the Nurse
The nurse (or a team coach, etc.) can discuss health behaviors and goal setting, emphasizing that goals we set for ourselves should be realistic. Setting ourselves up for success is the best way to accomplish a goal. Children should strive for changes that they will be able to meet instead of those that are unattainable (see Lesson 33 for more on goal setting).

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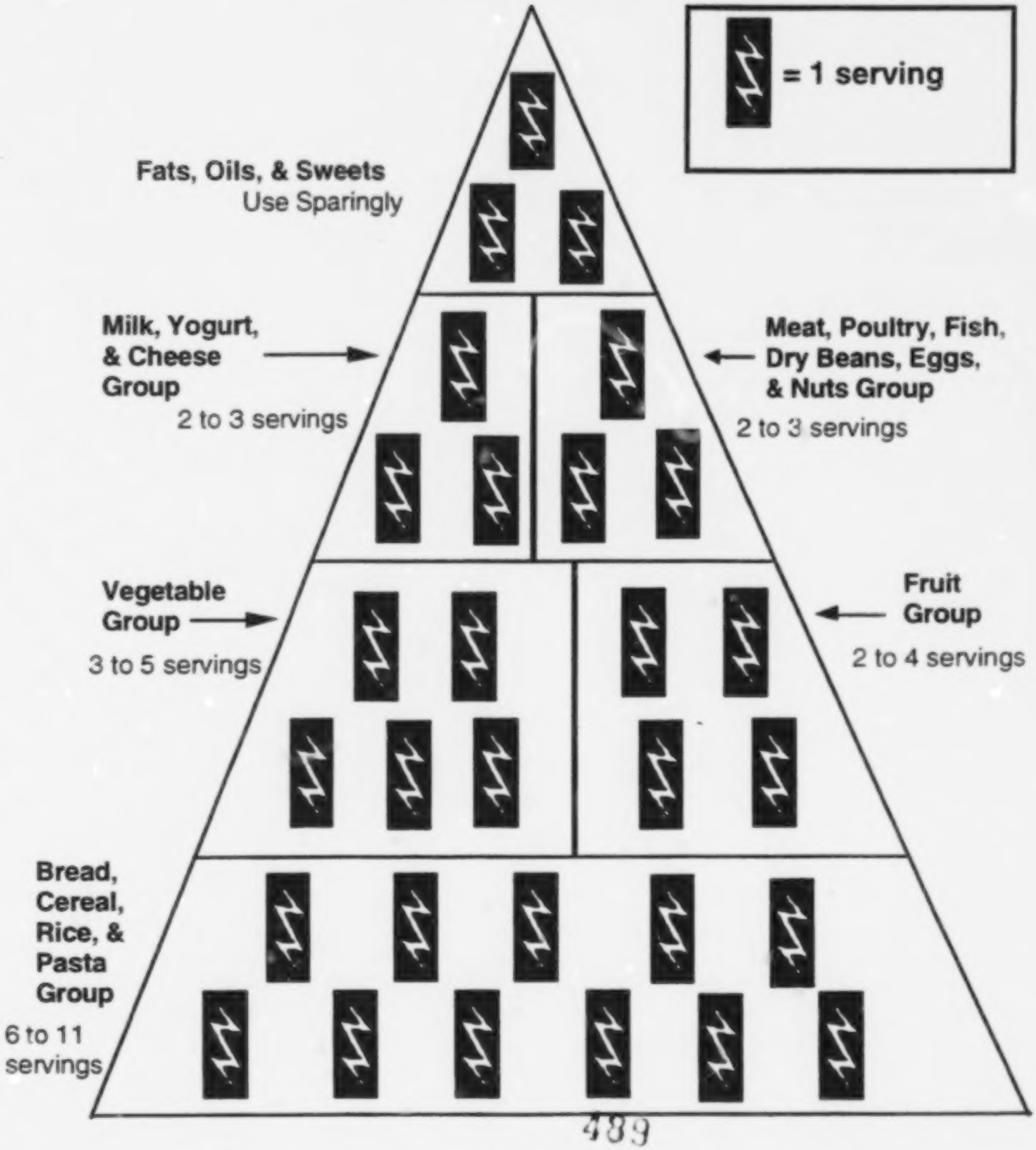
I Think I Can, I Knew I Could

Based on the outcome of the *Energy Bolts!* worksheet, your students might want to set some goals for change in eating habits. They might want to try to eat more foods in one particular group and cut down on foods in another. Encourage them to set specific goals (i.e., I will eat more fruit each day by having 3/4 cup fruit juice every day at breakfast). Give them extra *Energy Bolts!* worksheets or *Goal Keeper!* worksheets (located at the end of Lesson 33) to take home and track their progress. Encourage students to recognize that patterns can be changed.

Name ______________________________ Date ______________

Energy Bolts!


= 1 serving
Fats, Oils, & Sweets
Use Sparingly
Milk, Yogurt, & Cheese Group
2 to 3 servings
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2 to 3 servings
Vegetable Group
3 to 5 servings
Fruit Group
2 to 4 servings
Bread, Cereal, Rice, & Pasta Group
6 to 11 servings

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Name________________________ Date________________________

PYRAMID REFERENCE SHEET

1 Serving Equals:

Bread, Cereal, Rice Pasta (6-11)	1 slice of bread half a hamburger or hot dog bun half a bagel or English muffin 1/2 cup of pasta, rice or cooked cereal 1 ounce of cereal
Vegetable (3-5)	1 cup of raw leafy vegetables 1/2 cup cooked or chopped vegetables 3/4 cup vegetable juice
Fruit (2-4)	1 medium apple, orange, or banana 1/2 cup chopped, cooked, or canned fruit 3/4 cup fruit juice
Meat, Poultry, Fish Dry Beans,Eggs, Nuts (2-3)	2-3 ounces of cooked lean meat, poultry or fish 1 cup cooked dry beans 2 eggs 4 tablespoons peanut butter
Milk, Yogurt, Cheese (2-3)	1 cup milk 1 cup yogurt 1 1/2 ounces of natural cheese 2 ounces of processed cheese

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The Food Guide Pyramid

How Many Servings Do You Need Each Day?

	Many women, older adults	Children, teen girls, active women, most men	Teen boys, active men
Calorie level*	about 1,600	about 2,200	about 2,800
Bread Group Servings	6	9	11
Vegetable Group Servings	3	4	5
Fruit Group Servings	2	3	4
Milk Group Servings	2-3**	2-3**	2-3**
Meat Group Servings	2, for a total of 5 ounces	2, for a total of 6 ounces	3, for a total of 7 ounces
Total Fat (grams)	53	73	93

*These are the approximate calorie levels you will consume if you choose low fat, lean foods from the five major food groups and use foods from the fats, oils, and sweets group sparingly.

**Women who are pregnant or breastfeeding, teenagers, and young adults to age 24 need 3 servings.

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SPARINGLY
lesson 29

Grades 4-6 "Energy Choices"
Curriculum Connection: Language Arts/Health
Instructional Time: 30 minutes/part (2 parts)
Student Vocabulary: thesaurus, sparingly, moderation, sugar, fat

NUTRITION OVERVIEW

Many people enjoy foods that have little nutritional value. Although these foods need not be eliminated from the diet, the USDA encourages us to consume them sparingly.

OBJECTIVES

The student will define "sparingly" and discover its synonyms. .

The student will assess his/her food intake and apply the concept of sparingly to energy intake from fats and added sugars in his or her own diet.

MATERIALS

dictionary and/or thesaurus
pencil and paper
Eating Fats and Sweets Sparingly worksheet (at the end of this lesson)
Sparingly Math worksheet

INFORMATION FOR TEACHERS

- Sugar is our basic source of energy. Sugar is a form of carbohydrate. Sugar can be an inherent part of a food (fruit or milk) or added at the table and during processing (sucrose or table sugar).

- Fats and oils are a concentrated source of energy providing more than twice the calories per gram that sugar does. Fats and oils can also be inherent in food (meat, eggs, milk, seeds and nuts) or added at the table (butter, salad dressing, gravy, and mayonnaise). Fats and oils are also added during such processes as creaming, frying, or sautéing a food.

- Every food group includes foods that have fat or sugar added. Thus, there are choices to make within each group. Too much of any food from any food group is

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undesirable. A variety of foods within each group should be selected to ensure consumption of important nutrients. Foods with added fat and sugar may be included in the diet; however, they should be eaten sparingly. These foods contain additional calories, but few if any additional nutrients.

- Sparingly refers to both amount and frequency. Sparingly means to use moderately; it does not mean eliminate.

STEPS TO FOLLOW

Part A

1. Review the five major food groups of the Food Guide Pyramid and focus attention on the tip of the pyramid, the Fats, Oils, and Sweets. Ask students to define the word "sparingly" and record their ideas on the board.

ask

2. If your dictionary does not have the word "sparingly," ask the students to look for the root word — spare. Spare can mean to refrain from, to use with restraint, not liberal, meager, not abundant or plentiful, scanty, lean. Emphasize that sparingly does not mean eliminate. Encourage your students to use the thesaurus to find other synonyms. Students can also list antonyms.

ask

3. Facilitate sharing of synonyms (and antonyms). Create a list of synonyms (and antonyms).

4. Describe "sparingly" as an adverb ending in "ly." In the pyramid, the verb "sparingly" modifies "to use." Ask students to think of other verbs that "sparingly" could modify, such as "to eat" and "to spend."

ask

5. Students may build on the concept of sparingly as an adverb modifying "to use" and write a poem that conveys the concept of using fats, oils, and sweets sparingly. Share a sample poem.

The Food Guide Pyramid gives food advice
Like "eat lots of bread, cereal, pasta and rice."
For some things like added sugar and fat
The Pyramid says to eat just a little of that.
It doesn't say to eat none at all,
Just try to keep the serving sizes small.
That's what sparingly means, you see
To eat in moderation and stay healthy.

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6. Share and display student-created poems.

Part B

1. Distribute and help the students complete the *Eating Fats and Sweets Sparingly* worksheet. Encourage students to discuss the survey findings.

2. Brainstorm with the students a list of alternative snacks that have little fat or added sugar. Examples are ice milk, pretzels, rice cakes, popcorn, vegetables, fruit, juices, low-fat yogurt.

EXTENSIONS

Bulletin Board Ideas

Display a vocabulary web of "sparingly." Put the word "sparingly" in the middle and use string or paper to connect the synonyms. Use the words the class generated in step 3 of this lesson.

Careers

Home Economist
Baker

Class Project

Research one of the following types of food products on the market: fat-free, lite, lowfat, low calorie, and reduced fat/calorie. Debate their usefulness. Solicit the students' opinion on the misperception that if a food is fat-free or sugar-free you can eat all that you want (any calories eaten over the amount needed for energy is stored in the body as fat). Fat-free and sugar-free foods can have a significant amount of calories per serving. For example, fat-free or sugar-free "ice cream" has 110 - 150 Calories per 1/2 cup serving. A bowl full (several servings) could easily contain 500 Calories!

Food Service Cooperation

Ask the Food Service Director to speak to the class about ways they have modified recipes to cut back on the amounts of added sugar and fat. Have students design a bulletin board for the cafeteria that depicts how this has been accomplished.

Further Investigations

Mathematics

Students determine the amount of sugar and fiber by weight in ready-to-eat breakfast cereals. See *Sparingly Math Worksheet* (at the end of this lesson). Students learn that as the sugar content of a cereal increases, the fiber typically decreases. If desired, create a bar graph on the chalkboard to illustrate the comparisons.

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Math Worksheet Information for Teachers

- Recommended cereals to contrast include Cheerios® vs. Frosted Cheerios®, Wheaties® Vs. Frosted Wheaties®, and Spoon Size™ Mini-Wheats® vs. Frosted Mini-Wheats®.

- Some people believe that adding sugar at the table to a low sugar cereal is no different than using a presweetened cereal. A teaspoon of sugar weighs 4 grams and contains 4 grams of sugar. Adding one teaspoon of sugar to a serving of Cheerios® results in 15% sugar (by weight) per serving. This is far lower that the presweetened Frosted Cheerios® which is 43% sugar by weight. In fact, it takes 5 teaspoons of sugar added at the table to equal the amount of sugar in Frosted Cheerios®.

- The grams of sugar listed on the nutrition panel includes sugars that are present naturally in the food (such as lactose in milk and fructose in fruit), as well as sugars added to the food during processing. To determine whether a sweetener has been added to a food, check the ingredient listing. Terms such as sugar (sucrose), fructose, honey, corn syrup, etc. are used to describe sweeteners added to foods. If one of these terms appears first or second in the list of ingredients, or if several of them appear, the food is likely to be high in added sugars.

Invite the Nurse

Invite the nurse to talk to the students about dental health. Metabolism of carbohydrates in the mouth leads to acid production which damages tooth enamel. If brushing isn't possible, it is important to at least rinse the mouth after eating. Ask the nurse to reinforce brushing and flossing as important healthful habits. You can also ask the nurse for a recommendation of a dentist or a dental hygienist who may come speak with the class instead.

I Think I Can, I Knew I Could

Have your students set goals to use foods with fat or added sugar sparingly. They may define sparingly by frequency or amount (or both), depending on their individual assessment. Have the goals made with small steps and be measurable, such as, "I will eat one piece of fruit this week for dessert in place of a cupcake" or "I will eat two cookies for a snack instead of five." Handout the *Goal Keeper!* worksheet (located at the end of Lesson 33) to monitor progress.

Taking It Home

Take home the *Eating Fats and Sweets Sparingly* worksheet and discuss with a family member alternatives for snack foods with little fat or added sugar.

SPARINGLY MATH WORKSHEET (KEY)

Compare the Nutrition Facts on a pair of breakfast cereals. One box is presweetened and the other is a lower sugar variety of the same cereal. For each cereal, what percentage by weight is sugar? What percentage by weight is fiber?

Example: Cheerios®

Nutrition Facts:
Serving size: 30 grams
Sugars: 1 gram
Dietary fiber: 3 grams

1. **Percentage sugar by weight**

$$\frac{\text{1 gram sugar/serving}}{\text{30 grams weight per serving}} \times 100\% = \textbf{3\% sugar by weight}$$

2. **Percentage fiber by weight**

$$\frac{\text{3 grams fiber/serving}}{\text{30 grams weight per serving}} \times 100\% = \textbf{10\% fiber by weight}$$

Example: Frosted Cheerios®

Nutrition Facts:
Serving size: 30 grams
Sugars: 13 grams
Dietary fiber: 1 gram

1. **Percentage sugar by weight**

$$\frac{\text{13 grams sugar/serving}}{\text{30 grams weight per serving}} \times 100\% = \textbf{43\% sugar by weight}$$

2. **Percentage fiber by weight**

$$\frac{\text{1 gram fiber/serving}}{\text{30 grams weight per serving}} \times 100\% = \textbf{3\% fiber by weight}$$

Which cereal has a greater percentage of sugar by weight? **Frosted Cheerios**

Which cereal has a greater percentage of fiber by weight? **Cheerios**

As the sugar content increases the fiber content (circle the correct answer)
increases **decreases** stays the same

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SPARINGLY MATH WORKSHEET

Compare the Nutrition Facts on a pair of breakfast cereals. One box is presweetened and the other is a lower sugar variety of the same cereal. For each cereal, what percentage by weight is sugar? What percentage by weight is fiber?

Nutrition Facts

Serving Size 1 Cup (55g/2.0 oz.)
Serving Per Container About 11

Amount Per Serving	Cereal	Cereal with 1/2 Cup Vitamins A & D Skim Milk
Calories	190	230
Fat Calories	10	10
	% Daily Values	
Total Fat 1.0g	2 %	2 %
Saturated Fat 0g	0 %	0 %
Monounsaturated 0g		
Polyunsaturated 0.5g		
Cholesterol 0mg	0 %	0 %
Sodium 0mg	0 %	3 %
Potassium 160mg	5 %	10 %
Total Carbohydrate 45g	15 %	17 %
Dietary Fiber 6g	24 %	24 %
Sugars 12g		
Other Carbohydrate 27g		
Protein 5g		

NAME OF CEREAL: ____________________
(presweetened)

NUTRITION FACTS:

Serving size:	____ grams
Sugars:	____ grams
Dietary fiber:	____ grams

1. Percentage sugar by weight:
____grams sugar/serving x 100% =______% sugar by weight
____grams weight/serving

2. Percentage fiber by weight:
____grams fiber/serving x 100% =______% fiber by weight
____grams weight/serving

NAME OF CEREAL: ____________________
(lower sugar variety)

NUTRITION FACTS:

Serving size:	____ grams
Sugars:	____ grams
Dietary fiber:	____ grams

1. Percentage sugar by weight:
____grams sugar/serving x 100% =______% sugar by weight
____grams weight/serving

2. Percentage fiber by weight:
____grams fiber/serving x 100% =______% fiber by weight
____grams weight/serving

Which cereal has a greater percentage of sugar?

Which cereal has a greater percentage of fiber?

As the sugar content increases the fiber content (circle the correct answer)
increases decreases stays the same

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Eating Fats and Sweets Sparingly

▼ = sugar
● = fat

How often do you eat/drink?	Seldom or never	1 -2 times a week	3-5 times a week	Almost daily
Colas, sodas, slush drinks, punch, lemonade ▼				
Hard candy, toffee, cotton candy, gum, candied corn or apples, caramel ▼				
Syrup, jam, jelly, honey ▼				
Sugar on breakfast cereal ▼				
Ice cream, puddings ▼				
Bacon, luncheon meat ●				
Whole milk, whipped cream, sour cream, cream cheese ●				
Fried foods like French fries or fried chicken ●				
Cream sauces, cream soups, gravies ●				
Potato chips, corn chips, cheese puffs ●				
Creamy or oily salad dressing, mayonnaise ●				
Chocolate bars ● ▼				
Pies, pastries, cookies, cakes, donuts, croissants ● ▼				

Take a look at your answers. More checks in the first two columns means that you are probably eating fats and sweets sparingly.

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WHERE'S THE FAT?

lesson 30

Grades 4-6 "Energy Choices"
Curriculum Connection: Mathematics
Instructional Time: 40 minutes
Student Vocabulary: grams, range

NUTRITION OVERVIEW

Within each food group, we have choices. Not all foods in each food group have the same nutrient composition. For example, foods that are processed can have a higher fat content than might be expected.

OBJECTIVES

The student will find that foods with added fat are found in the major food groups of the Food Guide Pyramid.

The student will rank order foods based on the grams of fat per serving and decide if the food should be eaten "sparingly."

The student will record the range of fat values found in a set of foods.

MATERIALS

Your Choice Can Make a Big Fat Difference —copy as transparency (this worksheet is at the end of this lesson)
food labels, from all the food groups (labels must show different amounts of added fat; for example: rice cakes, tortilla chips, cupcakes, and bread representing the Bread, Cereal, Rice, and Pasta group)
Food Guide Pyramid poster (to obtain see Resource List)
(Optional) Vitamin C in Potatoes worksheet (at end of this lesson)

INFORMATION FOR TEACHERS

- The foods in every food group can have fat and/or sugar added. Using fats, oils, and sweets sparingly, also applies to foods in the food groups that have added fat. These foods need to be eaten sparingly; they do not have to be omitted. For example, potato chips are in the vegetable group because the main ingredient is still

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potatoes. Due to their high fat content after processing, they are a "sparingly" choice.

- Fat is a more critical health/nutrition issue than is added sugar. High dietary fat intake is linked to chronic diseases such as heart disease, some types of cancer, obesity, diabetes, and hypertension.
- Foods are put into the same food groups because of similar nutrients. We need to eat a variety because some foods are higher in nutrients, calories or fat than others.
- Foods with minimal processing within each food group have approximately the same number of calories per serving. Foods that have been processed with added fat, have more calories. For example: a small baked potato vs french fries.
- There are "best," "fair," and "sparingly" choices within each food group based on fat content. The category criteria is different for each food group. Information sheets for each food group are at the end of this lesson.

STEPS TO FOLLOW

1. Review the Food Guide Pyramid using the pyramid poster. Remind students that foods are categorized into food groups on the basis of the nutrients they contain. Point out the key that describes the fat and sugar symbols used in the pyramid graphic. Ask students to name the food groups that have circles (indicating fat) scattered throughout the graphic (all but the fruit group). Ask what these symbols mean (there is added fat to some foods in these groups). Ask the students to name the food groups that have inverted triangles (indicating sugar) scattered throughout the graphic (all but the meat and vegetable groups). Ask what these symbols mean (there is sugar added to some foods in these groups).

ask

2. Ask how the addition of fat or sugar changes a food. (Added fat and sugar increase the calories (energy) without adding a significant amount of other beneficial nutrients such as vitamins and minerals.) **Optional**: Compare food labels on like products to illustrate this point i.e., a minimally processed food such as fresh potatoes vs. a processed food like potato chips. You might want to use the *Vitamin C in Potatoes* worksheet for this and complete as a class activity or take home assignment. Some suggested food label comparisons are

ask

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frozen hash browns, french fries or tater tots, mashed potatoes, etc. The information for a baked potato has been provided.
Complete the worksheet as directed and discuss.

3. Introduce the idea that there is a likely link between diet and health and chronic diseases. The evidence is stronger that a high fat diet poses a greater risk for chronic disease than sugar. Nevertheless, both fat and sugar should be used sparingly because any calories eaten over the amount needed for energy is stored in the body as fat.

4. Explain that within each food group there are choices to make. Use the transparency master - *Your Choice Can Make a Big Fat Difference*. While the foods in each food group start with the same basic ingredients (i.e., a vegetable, fruit, milk, meat or grains) and many of the same nutrients, the vitamins and minerals become diluted as the amount of calories and fat increase. This is because the serving size (i.e. one ounce) must remain the same, so as fat and sugar go in, something must come out.

5. Tell the students they will now compare foods nutritionally by reading food labels. Provide an example of four products in the Bread, Cereal, Rice, and Pasta group. (For example: bread, presweetened breakfast cereal, cream of rice soup, and rice.) First ask the students rank the foods by fat content. Which food do they feel has the least amount of fat and which has the most? To check the accuracy of the ranking, students use the Nutrition Facts to find total grams of fat per serving. Record the range of fat grams in the products from lowest to highest. Conclude that foods within each food group provide a range of fat content.

ask

Record on the board for student reference: Best choices = less than 3 grams of fat per serving. Fair choices = 3-5 grams of fat per serving. "Sparingly" = 5 grams of fat or more per serving.

6. Share with students the guidelines for making low fat food selections. Tell the students that, for managing fat, the "best choices" in the Bread, Cereal, Rice, and Pasta group have less than 3 grams of fat per serving. The "fair" choices have 3-5 grams of fat per serving. Finally, the foods to choose "sparingly" are those with 5 grams of fat or more per serving.

   Now have the students categorize the four products they ranked in step six into "best," "fair," and "sparingly" categories.

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7. At this point, you may want to remind the students that eating foods with added fat can be part of a healthful diet as long as these foods are eaten with moderation and balanced among choices made in the other food groups. This leads into the remainder of the activity where the students (in groups) guess a rank order, verify the rank order using the Nutrition Facts, and categorize foods from other food groups.

8. Divide the students into groups of three or four. Give each group a different set of food packages, all from the same food group. Instruct the students to first guess what they think the ranking will be from lowest to highest in terms of fat content. Then, direct them to verify the ranking using the Nutrition Facts. Finally, have the students categorize the foods as "best," "fair," and "sparingly" choices.

9. Let the students rotate the sets of products so that all of the students have a chance to categorize all of the foods.

10. Help students draw conclusions about food products within the same food group. Summarize by saying that foods higher in fat should be eaten less often than foods with fewer grams of fat.

EXTENSIONS

Bulletin Board Idea

Select a group of snack foods to display. Divide the board into three sections - "best," "fair," and "sparingly." Pin empty food packages on the board in the category in which they qualify based on grams of fat. Highlight the grams of fat contained in each product.

Careers

Home Economist
Baker

Food Service Cooperation

Ask the Food Service Director to share food labels or nutrition composition charts of some foods offered in the cafeteria. Have the students compare similar products in the grocery store. Are school lunch items higher or lower in sugar and fat?

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Further Investigations

Mathematics

- Have the students calculate the amount of fat by weight in food. On the Nutrition Facts label, the student will find the total fat per serving (grams) and the weight of the serving (grams).

Example: 2% milk
5 grams total fat per serving
240 grams weight per serving (mL = grams)

$$\frac{\text{5 grams of total fat per serving}}{\text{240 grams of weight per serving}} \times 100\% = \textbf{2\% milkfat by weight}$$

- Contrast the amount of fat by weight to the percentage of calories from fat.

Example: 2% milk

$$\frac{\text{grams of total fat per serving} \times \text{9 calories/gram}}{\text{calories per serving}} \times 100\%$$

$$\frac{5 \times 9}{120} \times 100\% = \textbf{38\% calories from fat}$$

Students will be using fractions and percentages. Using UNIFIX CUES® ***or counters may help.***

Have the students recall the health guideline recommending Americans consume 30% or less of our total calories each day from fat. Point out that percentage calories from fat is very different from percentage fat by weight.

Invite the Nurse

The American Heart Association and the American Cancer Society have lessons and activities that your school nurse could conduct in your classroom. Focus should be on dietary fat and its link to heart disease and cancer.

I Think I Can, I Knew I Could

Have your students set goals to use foods with added fat sparingly. They may apply sparingly by frequency or amount (or both), depending on their individual assessment. Be sure the goals are measurable and made with small steps. Examples are, "I will eat one piece of fruit this week for dessert in place of a cupcake" or "I will have two cookies for a snack instead of five." Provide copies of the *Goal Keeper!* worksheet (located at the end of Lesson 33) so they may monitor their progress.

Taking It Home

Have the students and a family member who cooks, find three favorite family recipes. Read the recipe together and see what, if any, are the sources of fat and added sugar. Suggest they experiment by reducing the sugar or fat a recipe calls for by 1/3. This is the general rule of thumb while still producing a tasty product. Share results in class!

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VITAMIN C AND POTATOES WORKSHEET

Name: ______________________________ Date: ____________________

Potatoes are high in carbohydrate, fiber, and vitamin C. This activity will help you to see how processing affects the nutrition of potatoes.

1. Complete the information about each form of potato.

FORM OF POTATO	**% DV VITAMIN C** (DAILY VALUE)	**% DV Fat** (DAILY VALUE)
Baked with skin	43%	0%
______________	______________	____________________
______________	______________	____________________
______________	______________	____________________

2. Compare the vitamin C content of the different forms of potatoes. Which has the most? Which has the least? Does processing affect the amount of vitamin C in potatoes? If so, how is the vitamin C content affected?

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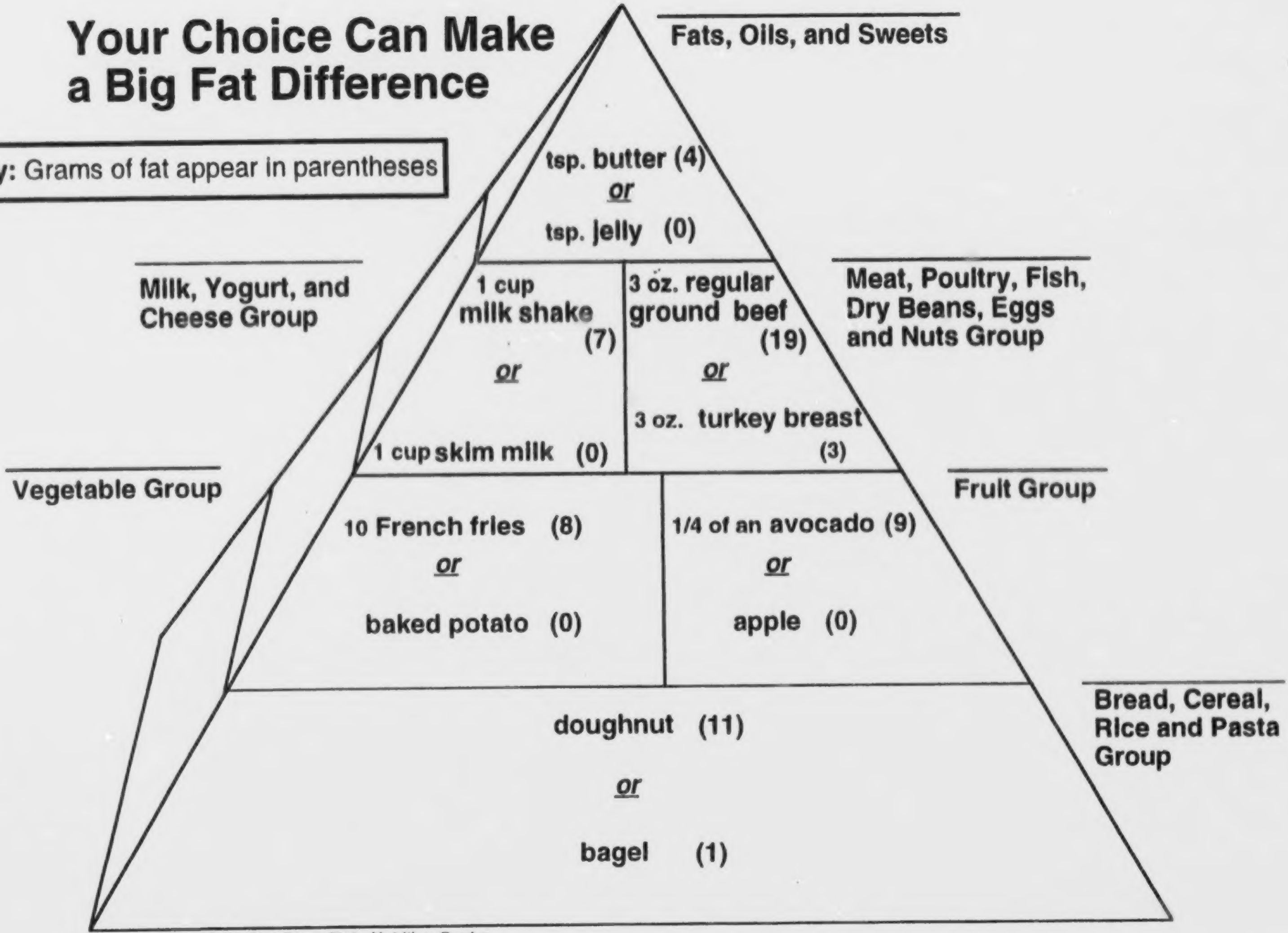
Your Choice Can Make a Big Fat Difference

Key: Grams of fat appear in parentheses



Fats, Oils, and Sweets
tsp. butter (4)
or
tsp. jelly (0)
Milk, Yogurt, and Cheese Group
1 cup milk shake (7)
or
1 cup skim milk (0)
Meat, Poultry, Fish, Dry Beans, Eggs and Nuts Group
3 oz. regular ground beef (19)
or
3 oz. turkey breast (3)
Vegetable Group
10 French fries (8)
or
baked potato (0)
Fruit Group
1/4 of an avocado (9)
or
apple (0)
Bread, Cereal, Rice and Pasta Group
doughnut (11)
or
bagel (1)

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MEAT, POULTRY, FISH DRY BEANS, EGGS, AND NUTS GROUP

Serving = 3 oz. of cooked meat, poultry, or fish, 1/2 cup cooked dry beans, 1 egg, 2 tablespoons of peanut butter, unless otherwise noted.

Best Choices (less than 10 grams of fat per serving)

- black-eyed peas
- Canadian bacon
- catfish
- chicken
- chickpeas
- clams
- cod
- Cornish hen
- crab
- dried chipped beef
- duck (wild)
- egg
- egg substitute
- egg white (1)
- egg yolk (1)
- flounder
- ground turkey
- breast
- haddock
- halibut
- ham
- heart
- kidney
- kidney beans
- lentils
- liver
- lobster
- mung beans
- mussels
- navy beans
- northern beans
- ocean perch
- orange roughy
- oysters
- pheasant
- pinto beans
- pollock
- pork tenderloin
- quail
- rabbit
- refried beans
- ribeye
- rockfish
- salmon
- scallops
- shrimp
- sirloin
- sole
- soybeans
- split peas
- squab
- squirrel
- sweetbreads
- tofu
- trout
- turkey
- turkey frank (1)
- veal cutlet
- venison
- whiting

Fair Choices (10-15 grams of fat per serving)

- bean dip
- beef tenderloin
- chuck roast
- coconut (1 oz.)
- cubed beef
- duck (domestic)
- extra lean ground beef
- flank steak
- goose
- ground turkey
- hot dog (1)
- lamb
- Lebanon bologna (2 slices)
- mackerel
- pork chop
- pork roast
- prime rib
- seeds (1 oz.)

Sparingly Choices (more than 15 grams of fat per serving)

- peanut butter
- beef bologna (2 slices)
- corned beef
- lean ground beef
- nuts (1/3 cup)
- porterhouse steak
- regular ground beef
- rib roast
- ribs
- sausage
- shortribs
- spareribs
- t-bone steak

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BREAD, CEREAL, RICE AND PASTA GROUP

Serving = 1 slice bread, 1 oz. ready-to-eat cereal, 1/2 cup cooked cereal, rice, or pasta, unless otherwise noted

Best Choices (less than 3 grams of fat per serving)

angel food cake (1/12 of a cake)
bagel
barley
bread crumbs
breadsticks
brown rice
buckwheat groats
bulgur
crackers (3-4): animal crackers, matzoh crackers, melba toast, oyster crackers, rye crackers, saltines
cookies (2): fig bars, gingersnaps, graham crackers, vanilla wafers
corn tortilla (not fried)
cornmeal
couscous
egg noodles
English muffin
farina
french bread
grits
hamburger bun
hot dog bun
Italian bread
oatmeal
pancake
pasta
pita bread
popcorn (air-popped) (1 cup)
pretzel
pumpernickel bread
rice
rice cake
ready-to-eat cereal (most varieties)
roll
rotini
rye bread
spaghetti
taco shell
Vienna bread
white bread
whole wheat bread
Yorkshire pudding

Fair Choices (3-5 grams of fat per serving)

biscuit
caramel corn
cookies: brownie (1), chocolate chip cookies (2)
croutons (0.5 oz.)
flour tortilla (not fried)
muffin
pizza crust (1/8 of a 14'" crust)
popcorn (commercially popped - plain) (1 cup)

Sparingly Choices (more than 5 grams of fat per serving)

cake (1/16 of a cake)
cheese balls/curls
chow mein noodles
corn bread
corn chips
croissant
cupcake
doughnut
fried rice
granola
pastry
pie crust (1/6 of an 8" pie)
popcorn (commercially popped - "buttered") (1 cup)
stuffing (1/2 cup)
toaster pastry
tortilla (fried)
waffle (1)

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VEGETABLE GROUP

Serving = 1 cup of raw leafy vegetables, 1/2 cup of other vegetables, 3/4 cup vegetable juice, unless noted

Best Choices (less than 2 grams of fat per serving)

most vegetables
vegetable juice
vegetable soup (with fat removed) (1cup)

Sparingly Choices (more than 3 grams of fat per serving)

coleslaw
french fries
fried vegetables
hash browns
mashed potatoes
potato chips
potato salad
scalloped potatoes

FRUIT GROUP

Serving = 1 medium apple, banana, or orange, 1/2 cup of chopped, cooked, or canned fruit, 3/4 cup fruit juice, unless otherwise noted

Best Choices (less than 2 grams of fat per serving)

most fruits
fruit juice

Fair Choices (2-3 grams of fat per serving)

olives (4 medium)

Sparingly Choices (more than 3 grams of fat per serving)

avocado (1/4 whole)

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MILK, YOGURT, AND CHEESE GROUP

Serving = 1 cup milk or yogurt, 1 1/2 oz. natural cheese, 2 ounces process cheese, unless otherwise noted.

Best Choices (less than 3 grams of fat per serving)

acidophilus milk (skim)
buttermilk (skim)
evaporated skim milk
farmer cheese
hot chocolate (made with skim milk)
ice milk
lowfat (1%) milk
lowfat frozen yogurt
lowfat fruited yogurt
nonfat dry milk (reconstituted)
nonfat frozen yogurt
nonfat fruited yogurt
nonfat plain yogurt
Parmesan cheese (1T)
Romano cheese (1T)
skim milk

Fair Choices (3-5 grams of fat per serving)

hot chocolate (made with lowfat milk)
lowfat acidophilus milk
lowfat chocolate milk
lowfat cottage cheese
lowfat (2%) milk
lowfat plain yogurt
lactose-reduced lowfat milk
part-skim ricotta cheese
soy milk

Sparingly Choices (more than 5 grams of fat per serving)

blue cheese
brick cheese
Brie cheese
Camembert cheese
Cheddar cheese
cheese imitation/substitute
cheese sauce
cheese spread
chocolate milk (whole)
Colby cheese
condensed milk
cottage cheese (regular)
custard
Edam cheese
evaporated whole milk
feta cheese
filled milk
Fontina cheese
gjetost cheese
goat milk
Gouda cheese
Gruyere cheese
havarti cheese
hot chocolate (made with whole milk)
ice cream
Indian buffalo milk
Limburger cheese
malted milk
milk shake
Monterey Jack cheese
Mozzarella cheese
Muenster cheese
Neufchatel cheese
Port du Salut cheese
processed cheese
provolone cheese
rice pudding
Roquefort cheese
sheep's milk
Swiss cheese
tapioca pudding
Tilsit cheese
whole buttermilk
whole dry milk (reconstituted)
whole fat frozen yogurt
whole fat fruited yogurt
whole fat yogurt
whole milk
whole milk ricotta cheese

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THE CAKE BAKING EXPERIMENT

Lesson 31

Grades 4-6 "Energy Choices"
Curriculum Connection: Science/Health
Instructional Time: 40 minutes/part (2 parts)
Student Vocabulary: oil, texture, aroma

NUTRITION OVERVIEW

The results of this cake tasting experiment might surprise you! Offer students a glass of prune juice and they will decline. As a substitute for oil in a cake mix, their tastebuds may be tricked.

OBJECTIVES

The student will participate in a taste test and record and compare observations using his/her senses.

The student will discover an acceptable way to reduce fat when making cake without compromising taste.

MATERIALS

3 boxed chocolate flavored cake mixes (same brand and flavor) that call for 1/3 cup oil to be added
1/3 c oil
1/3 c applesauce
1/3 c prune juice
9 eggs (3 per cake)
3 3/4 cups water
3 cake pans (13"x9"x2" rectangular)
paper towels (2 or 3 per student)
non-stick vegetable cooking spray
3 large mixing bowls
3 large spoons for mixing
knife for cutting the cakes
3 (paper) plates to put the bite-size pieces of cake on
Taste and Compare worksheet (at the end of this lesson)
The Cake Baking Experiment Math worksheet (at the end of this lesson)

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INFORMATION FOR TEACHERS

- Applesauce and prune juice can be used in recipes to substitute for oil and reduce the amount of fat. This substitution method works very well in cakes, quick breads and muffins.

- Prune juice will overpower and unfavorably change the color of cakes that are not chocolate.

- Substituting applesauce or prune juice for oil in "The Cake Baking Experiment" will significantly reduce the amount of fat in the cake, but will not eliminate the fat completely. The cake mix contains some fat, as do the eggs that are added (see math answer sheet for exact figures).

- Be sure to follow your school's policy on food in the classroom. Two potential concerns are food allergies and caffeine. Send the taste test permission letter home to parents before doing the experiment. (Note: 3 bite-size pieces of chocolate cake contain approximately 4 mg. caffeine - the same amount in 2 tablespoons of cola.)

- Before beginning this lesson, decide who will bake the cakes. For the greatest learning experience, have the students make the cakes. (One or two parent volunteers would be a real asset.) Other ideas are the school food service or the high school home economics class. Ideally, the cakes should be tasted as soon after baking as possible regardless of who makes them.

- If the students do not make the cakes, skip Part A and begin with Part B.

STEPS TO FOLLOW

Part A

1. Distribute *The Cake Baking Experiment* Math worksheet. Instruct the class to work on the questions when it's not their turn to help make the cake.

2. Divide the class into three work groups (one group for each cake). For large classes make a fourth group assigned to distributing ingredients, preparing pans for baking etc. Make sure hands and working surfaces are clean. Give one group oil, one group prune juice instead of the oil, and one group applesauce instead of the oil. Instruct the students to prepare their cakes according to

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package directions except two groups will be substituting applesauce or prune juice for the oil. Students should take turns helping to make the cake (stirring, adding ingredients, etc.). If cake instructions do not include mixing by hand, tell them to stir approximately 300 times which takes about five minutes.

3. Spray the baking pans with the nonstick spray. Pour in the cake batter and bake according to package directions.
4. Inform students they will participate in a taste test and comparison once the cakes are baked. Students should predict which cake they think will be the tastiest.

Part B

Set up the taste test: If the class prepared the cakes, remove them from their baking pans so the students don't recognize their cake. Label the cake made with oil "A" and the cakes made with substitutes "B and C." Cut the cakes into bite-sized pieces.

ALLERGY CAUTION!

ask

1. Ask students to list the reasons why they eat. Explain that although we eat to survive, we also eat for pleasure. Food gives us pleasure because of the way it tastes and the way it makes us feel. Ask students what foods they eat for enjoyment. Explain that cake is one food that makes many people feel good. Ask students to think of reasons (i.e. properties) that make cake feel good. Write these reasons on the board. Properties should include mouthfeel (the way the cake feels in your mouth), appearance, smell, taste, and texture. Review the five senses and how each sense contributes to likes or dislikes about certain foods.
2. Distribute paper towels. Instruct students to make a grid and label each section "A, B, or C ." Choose student volunteers to pass out cake. Each student should place one piece of each cake on the properly marked square.
3. Pass out the *Taste and Compare* worksheet and direct completion.
4. Ask which cake is tastiest. Lead discussion on reasons why students like one over the other.

ask

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5. Reveal that cake "A" has oil and cakes "B and C" are the substitutes.

6. Discuss reasons why applesauce or prune juice are or are not good substitutes for oil in cakes.

7. Your students might like the reduced fat cake or they may not have a preference for one cake over the other. Some students might prefer the regular version because of familiarity. No matter what the students prefer, conclude that cutting out fat does not mean cutting out pleasure.

EXTENSIONS

Food Service Cooperation

Suggest the favorite recipe modification to the school Food Service Director. Ask her/him to put the cake on the menu and do not let the school know of the recipe modification until after lunch is over. At the end of the lunch hour, have students fill in happy or sad faces to indicate if they liked the new reduced fat recipe. Post the faces in the cafeteria in a graph form. If most liked the reduced fat cake, label the graph "We're all Smiles Over Low Fat!"

Further Investigations

Science

Repeat the experiment, but this time substitute apple juice for the applesauce, and one large mashed banana for the prune juice. Since prune juice won't be used, the flavor of the cake could be changed from chocolate to another flavor. Another idea is to try the experiment with a quick bread or muffins instead of cake.

Taking It Home

Try "The Cake Baking Experiment" at home with a responsible family member and report results to the class. Which cake did your family members enjoy?

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THE CAKE BAKING EXPERIMENT MATH WORKSHEET (ANSWER KEY)

Most packaged food has a place on the side panel labeled "Nutrition Facts." This details what is in the product by serving size. You must check to see how many servings there are per container.

Cake mix for example, has a serving size of 1/12 package which means if the cake were cut into twelve equal pieces, the Nutrition Facts given apply to one of them. Cake mix Nutrition Facts can be confusing because they list two columns of information. One column is called "mix" which means the facts given are about the dry powder only (eggs, oil, and water are not included). The other column is called "prepared." This means the nutrition facts are about the batter (eggs, oil and water included).

Here are the facts you will need to determine the grams of fat in one piece (1/12) of each cake made today:

Food item	**Total grams of fat**
entire package cake mix	48
3 eggs	15
1/3 cup oil	70
1/3 cup prune juice	0
1/3 cup applesauce	0

Cake made with oil:

cake mix	48	grams
oil	70	grams
3 eggs	15	grams
Total (cake)	133	grams (divide by 12 to get grams of fat per serving)
Total (per serving)	11.08	grams

Cake made with applesauce:

cake mix	48	grams
1/3 cup applesauce	0	grams
3 eggs	15	grams
Total (cake)	63	grams (divide by 12 to get grams of fat per serving)
Total (per serving)	5.25	grams

Cake made with prune juice:

cake mix	48	grams
1/3 cup prune juice	0	grams
3 eggs	15	grams
Total (cake)	63	grams (divide by 12 to get grams of fat per serving)
Total (per serving)	5.25	grams

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THE CAKE BAKING EXPERIMENT MATH WORKSHEET QUESTIONS (ANSWER KEY)

Name ______________________________ **Date** ____________________________

Answer the following questions about each of the cakes

1. How did the cake prepared with oil differ from the other two cakes?

It has a greater amount of fat

2. Why do the cakes prepared with applesauce and prune juice have fewer grams of fat? (Hint: What do applesauce and prune juice have in common?)

Applesauce and prune juice are from the Fruit group. Refer to the Food Guide Pyramid poster. Notice that there are no fat symbols in the Fruit group.

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THE CAKE BAKING EXPERIMENT MATH WORKSHEET

Most packaged food has a place on the side panel labeled "Nutrition Facts." This details what is in the product by serving size. You must check to see how many servings there are per container.

Cake mix for example, has a serving size of 1/12 package which means if the cake were cut into twelve equal pieces, the Nutrition Facts given apply to one of them. Cake mix Nutrition Facts can be confusing because they list two columns of information. One column is called "mix" which means the facts given are about the dry powder only (eggs, oil, and water are not included). The other column is called "prepared." This means the nutrition facts are about the batter (eggs, oil and water included).

Here are the facts you will need to determine the grams of fat in one piece (1/12) of each cake made today:

Food item	**Total grams of fat**
entire package cake mix	48
3 eggs	15
1/3 cup oil	70
1/3 cup prune juice	0
1/3 cup applesauce	0

Cake made with oil:

cake mix _____ grams
oil _____ grams
3 eggs _____ grams
Total (cake) _____ grams (divide by 12 to get grams of fat per serving)
Total (per serving) _____ grams

Cake made with applesauce:

cake mix _____ grams
1/3 cup applesauce _____ grams
3 eggs _____ grams
Total (cake) _____ grams (divide by 12 to get grams of fat per serving)
Total (per serving) _____ grams

Cake made with prune juice:

cake mix _____ grams
1/3 cup prune juice _____ grams
3 eggs _____ grams
Total (cake) _____ grams (divide by 12 to get grams of fat per serving)
Total (per serving) _____ grams

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THE CAKE BAKING EXPERIMENT MATH WORKSHEET QUESTIONS

Name ______________________ **Date** ______________________

Answer the following questions about each of the cakes

1. How did the cake prepared with oil differ from the other two cakes?

2. Why do the cakes prepared with applesauce and prune juice have fewer grams of fat? (Hint: What do applesauce and prune juice have in common?)

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TASTE AND COMPARE

Name ______________________________ **Date** ______________________________

Taste and evaluate the type of cakes. Decide which of the words below best describes each cake and circle them.

CAKE A

• Appearance (looks) •

light dark

holes no holes

flat high

• Aroma (smell) •

smells good smells bad

• Taste •

sweet bitter

• Texture (feels) •

wet (moist) dry

CAKE B

• Appearance (looks) •

light dark

holes no holes

flat high

• Aroma (smell) •

smells good smells bad

• Taste •

sweet bitter

• Texture (feels) •

wet (moist) dry

CAKE C

• Appearance (looks) •

light dark

holes no holes

flat high

• Aroma (smell) •

smells good smells bad

• Taste •

sweet bitter

• Texture (feels) •

wet (moist) dry

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TASTE AND COMPARE WORKSHEET

Name ______________________ **Date** ______________________

Answer the following questions about each of the cakes

1. Was there a difference between the cakes?

2. Which cake did you prefer? Why?

3. Were all the cupcakes acceptable? Why or why not?

4. Can you think of any words that are not listed on the previous page that describe each cake? Write them below.

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PYRAMID POWER
lesson 32

Grades 4-6 "Energy Choices"
Curriculum Connection: Mathematics
Instructional Time: 40 minutes
Student Vocabulary: ounces, cups, grams, tablespoon, teaspoon, categorize, metric

NUTRITION OVERVIEW

Caloric intake is one component of a healthy diet. The nutrients that comprise those calories deserve careful consideration as well.

OBJECTIVES

The student will locate food and nutrient measures in a food composition table and calculate caloric intake.

The student will assign foods to the appropriate food group.

The student will compare two methods of recording food intake and conclude that both methods should be used.

MATERIALS

Pyramid Power Book (included at the end of this lesson)
food scale that measures in grams or ounces (borrow from food service)
measuring cups
measuring spoons
Food Diary worksheets (at the end of this lesson)
Pyramid Power worksheet (at the end of this lesson)

INFORMATION FOR TEACHERS

- The *Pyramid Power Book* contains food composition tables. Food composition tables provide nutritional information (total calories, amount of fat, carbohydrate, and protein, vitamin and mineral content, etc.) for various food products. The information comes from the chemical analysis of food by laboratories in government, universities, and the food industry. Bomb calorimetry is the method that determines a food's total

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calories. (Bomb calorimetry is explained and accompanied by a demonstrating activity in Lesson 26.)

STEPS TO FOLLOW

Part A - Utensils and units for measuring food

1. Show the measuring tools and ask the students what all of these items have in common. (They can be used to measure food.)
2. Show a scale that measures in grams or ounces. Ask how this scale is different from scales used to measure body weight. Explain that one weighs in ounces, the other in pounds. While food may be bought in pounds, we typically eat amounts that are measured in ounces.

ask

Distinguish between metric and standard English measurements. Help students relate to grams. For example, a paper clip weighs about 1 gram and a nickel about 5 grams.

3. Hand out the *Pyramid Power Book*. Direct the students to look inside to find specific units used to measure food. For example, which foods are measured in ounces? Write student responses on the board and refer to the measuring tools at the same time.
4. Students should look at the *Pyramid Power Book* and identify other units of measure. Write units of measure on the board (cup, tablespoon, teaspoon, piece, etc.)

Part B - Using the Pyramid Power Book to analyze energy intake

1. Distribute the *Food Diary* worksheet that lists what Nicholas and Julia ate for one day. Complete Nicholas's food intake as a class activity. Then assign the students to complete Julia's food intake independently or in pairs.
2. Use the *Pyramid Power Book* to locate the calories in each food Nicholas ate. Transfer the calories in the book to the worksheet. Be careful to notice the amounts of food (number of servings) that Nicholas ate. Sometimes the amounts eaten are not the same as the amount listed in the table. Students must add the calories at each meal to get a subtotal. Adding all the subtotals will result in Nicholas' total energy intake for one day.

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3. Compare Nicholas' intake to the recommended number of calories for his age (2,800 Calories). Ask if Nicholas was close to the amount of calories he needed for one day (yes). Does this mean he ate all the nutrients and the recommended number of servings from each food group? (No, the number of calories in the foods eaten does not measure what other nutrients were in the foods.)

ask

Students may need to complete the next step before answering questions. Teacher should observe students and determine if more information is needed.

4. Instruct the students to use the list of foods Nicholas ate, categorize the foods according to the Food Guide Pyramid, and record the foods on the *Pyramid Power* worksheet for Nicholas.

5. Evaluate Nicholas' food intake based on the Food Guide Pyramid. Did he eat from all the food groups? Did he consume at least the minimum number of recommended servings for each group? What changes, if any, should Nicholas make? Offer your students the opportunity to think about the answers and offer suggestions for change.

6. Independently or in pairs, students should follow the same procedure to analyze Julia's food intake.

EXTENSIONS

Careers

Dietitians
Food Scientists

Class Project

Set up an estimating portions activity. Display various foods the children enjoy in bowls or on paper plates in the amount they would likely consume in one sitting. For example, a serving of chips according to the food label might be 10 - 15 chips but you know your students usually eat 3 times that much. That's how much you should display. Suggested items to display include ready-to-eat cereal, potato chips, corn chips, crackers, peanuts, peanut butter, cheese cubes, cooked hamburger patty (2 - 3 ounces cooked weight equals one serving), ultra large cup of soda available at convenience stores, etc. Number each display. Instruct students to number a blank sheet of paper with the same number as displays i.e., 1 - 10. Students should rotate through stations, estimating what the standard serving size is and how many servings they think are displayed. Once everyone has finished estimating, reveal the answers. For example, if 3 ounces of potato chips were displayed, state that the actual serving size (defined on the label) is one ounce. Encourage the students to comment. Some may disagree with the serving size believing it is unreasonable (too much or too little). Conclude by having one student measure correct serving size (according to the food label) for the class to see before moving on to the next display. If desired, calories and fat grams can also be shared with students.

Note: This activity would be time consuming and expensive for one person to set up and organize. Enlist help from other teachers who would like their students to share in this activity. Ask your food service or parents to volunteer to provide some of the food items and measuring utensils. Perhaps a local grocery store would donate some of the food.

Food Service Cooperation

The students can use the *Pyramid Power Book* to compute the calories for a week's worth of school lunch menus and then post the calories in the cafeteria. Indicate that these calories are used to get the students through the afternoon so they can think, work, and run at their best.

Further Investigations

Math

- Bring to class some breakfast cereal and a measuring cup and a scale that measures in ounces. Ask how many cups students think are in one ounce of cereal. Then have the students measure the food using the cereal, scales, and measuring cups and write an equation such as:1 cup = 1 ounce of breakfast cereal.

  Note: Not all 1 cup portions of cereal weigh 1 ounce. Some cereals are lighter and some more dense than others. A serving of cereal is one ounce.

- If a gram scale is available (check with the Food Service Director or science coordinator), have students measure the grams of fat or sugar in various products using granulated sugar and a vegetable shortening. (For example: a one ounce bowl of presweetened cereal might contain 12 grams of sugar. Weighed out, this would be a small pile of sugar equal to about 3 teaspoons.)

FOOD DIARY ANSWER KEY

NICHOLAS (AGE 14)

Use the **Pyramid Power Book** to find and to write down the number of calories for each of the foods listed below.

Meal	Food Eaten	Amount	Calories
Breakfast:	cold cheese pizza	1 slice	290
	whole milk	1 cup	150
	raisins	1/2 cup	220
		subtotal:	660
Lunch:	wheat bread	2 slices	130
	American cheese	1 oz slice	105
	margarine	1 tbsp	100
	vegetable soup	2 cups	140
	whole milk	1 cup	150
		subtotal:	625
Dinner:	roast chicken breast w/ skin	1/2 breast	140
	brown rice	1 cup	230
	cola	12 oz	160
	apple pie	1/6 pie	405
		subtotal:	935
Snacks:	taco	2 tacos	390
	cola	12 oz	160
		subtotal:	550

How many calories did Nicholas eat? Add the subtotals for all the meals above.

660	+	625	+	935	+	550	=	2,770
breakfast		lunch		dinner		snacks		Total Calories

The recommended number of calories for a teen boy is about 2,800. Was Nicholas' calorie intake about 2,800?

Yes, Nicholas had about 30 calories less than the recommendation.

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FOOD DIARY ANSWER KEY

JULIA (AGE 11)

Meal	Food Eaten	Amount	Calories
Breakfast:	white bread	1 slice	65
	margarine	1 tbsp	100
	corn flakes	1 1/4 cup	110
	skim milk	2 cups	170
		subtotal:	445
Lunch:	pancakes	3 pancakes	180
	margarine	2 tbsp	200
	strawberries	1 cup	45
	orange juice	1 cup	110
		subtotal:	535
Dinner:	beef and vegetable stew	2 cups	440
	white bread	1 slice	65
	margarine	1 tbsp	100
	tomato juice	1 cup	40
	vanilla ice cream	2 cups	540
		subtotal:	1,185
Snacks:	wheat crackers	8 crackers	70
	cola	36 oz	480
	bagel	1 bagel	200
	jelly	1 tbsp	50
	popsicle	1 popsicle	70
		subtotal:	870

How many calories did Julia eat? Add up the subtotals above.

445	+	535	+	1,185	+	870	=	3,035
breakfast		lunch		dinner		snacks		Total Calories

The recommended number of calories for a child of age 11 is about 2,200. Was Julia's energy intake of calories about 2,200?

No, Julia had 835 calories more than the recommendation.

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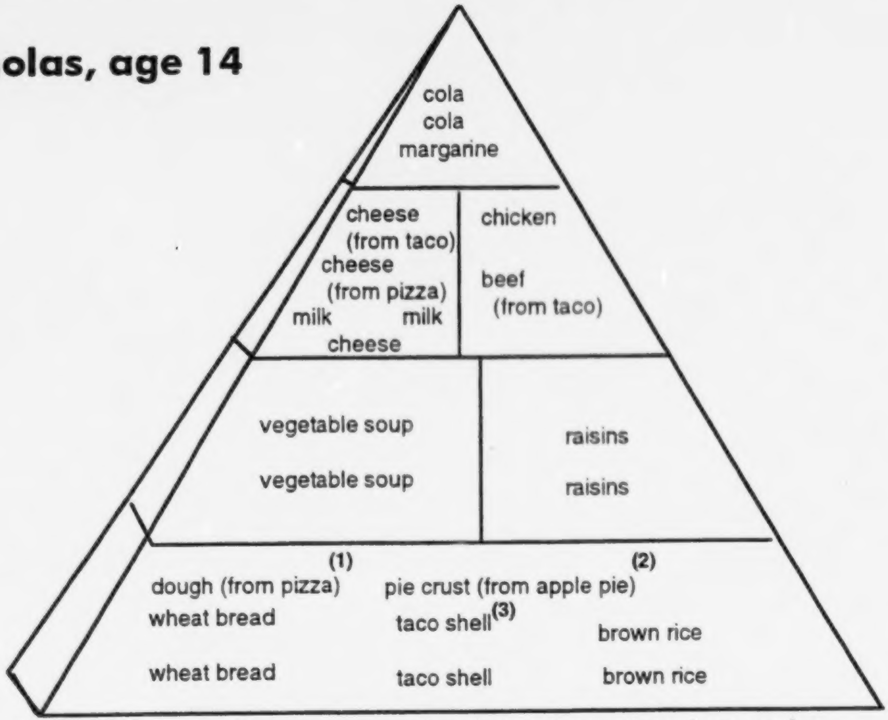
Pyramid Power Answer Key

Nicholas, age 14


cola
cola
margarine
cheese (from taco)
cheese (from pizza)
milk
milk
cheese
chicken
beef (from taco)
vegetable soup
vegetable soup
raisins
raisins
(1)
dough (from pizza)
wheat bread
wheat bread
(2)
pie crust (from apple pie)
taco shell(3)
taco shell
brown rice
brown rice

(1) The amount of tomato sauce in one slice of pizza does not equal one serving.
(2) The amount of apples in one slice of apple pie does not equal one serving of fruit.
(3) The amount of vegetables in the tacos does not equal one serving of vegetables.

Although Nicholas met all of his energy needs for this day, he did not consume the minimum number of servings recommended by the Food Guide Pyramid. A boy his age is growing fast and should try to eat the maximum number of servings from each group every day. Allow your class to brainstorm ideas to improve the quality of Nicholas' diet while maintaining energy balance. Two suggestions follow.

1. Nicholas could substitute one cup of orange juice (110 Calories) and one cup of tomato juice (40 Calories) for 12 oz of cola (160 Calories). This allows him to improve the number of servings he consumed in both the vegetable and fruit groups.

2. Nicholas ate one slice of apple pie which has a lot of added fat and calories (405 Calories per slice). Although the pie crust counts as a bread, the apples do not count as a fruit. If Nicholas had taken in the 405 Calories from lower fat food sources, he could have improved the nutrient density of his diet. For example, he could have eaten 10 grapes (35 Calories), 4 graham crackers (120 Calories), 7 celery stalks with 2 tablespoons of peanuts butter (220 Calories) and 1 cup of raw carrots (30 Calories).

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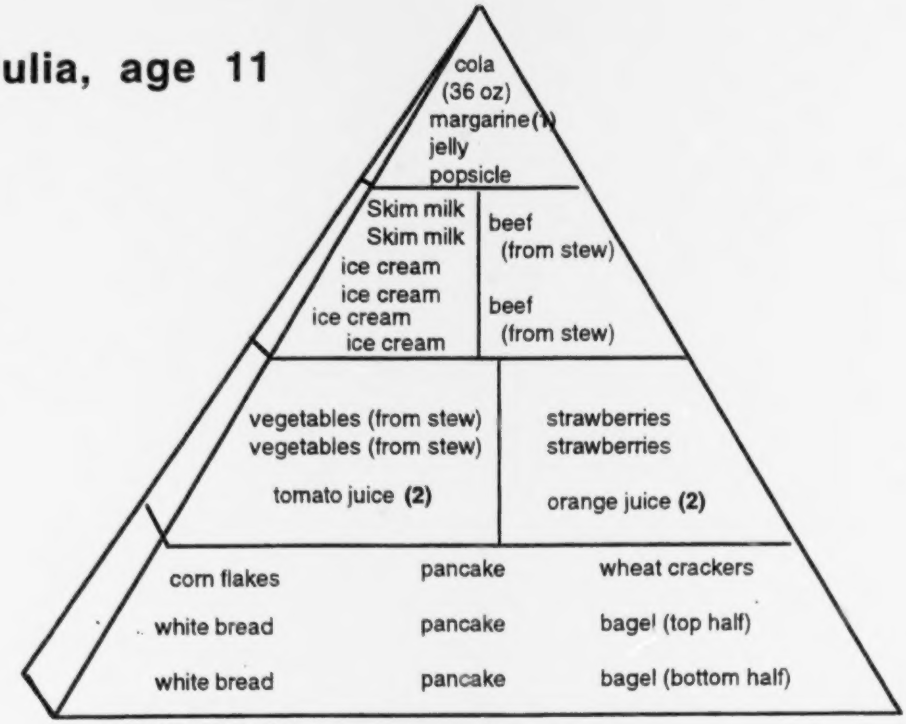
Pyramid Power Answer Key

Julia, age 11


cola
(36 oz)
margarine(1)
jelly
popsicle
Skim milk
Skim milk
ice cream
ice cream
ice cream
ice cream
beef
(from stew)
beef
(from stew)
vegetables (from stew)
vegetables (from stew)
tomato juice (2)
strawberries
strawberries
orange juice (2)
corn flakes
white bread
white bread
pancake
pancake
pancake
wheat crackers
bagel (top half)
bagel (bottom half)

(1) Julia had 3 tablespoons of margarine.

(2) For fruit and vegetable juice, 3/4 cup equals one serving.

Julia met the minimum number of servings for all groups. However Julia's caloric intake for this day exceeded 2,200 Calorie recommendation for her age. Ask your class to think of ways to decrease the number of calories she consumed. Here are some suggestions:

1. Julia needs to drink less cola. She could substitue one 12 oz cola (160 Calories) with one cup of apple juice (115 Calories). She could drink water which has no calories. She could eat just one cup of ice cream with dinner instead of two. This would save her 270 Calories. Or instead of ice cream, Julia could have fresh fruit like peaches (35 Calories each) and drink another cup of skim milk (85 Calories) or have ice milk inplace of ice cream.

2. To save calories, Julia could use less margarine on her pancakes or bread. Margarine has 100 Calories per tablespoon.

3. Julia could eat some Brussel sprouts or cooked carrots with dinner. This would give her the vegetable she needs without providing many extra calories.

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Name: ______________________________ **Date:** __________

Nicholas' Food Diary (age 14)

Use the **Pyramid Power Book** to find and to write down the number of calories for each of the foods listed below.

Meal	**Food Eaten**	**Amount**	**Calories**
Breakfast:	cold cheese pizza	1 slice	________
	whole milk	1 cup	________
	raisins	1/2 cup	________
			subtotal: ________
Lunch:	wheat bread	2 slices	________
	American cheese	1 oz slice	________
	margarine	1 tbsp	________
	vegetable soup	2 cups	________
	whole milk	1 cup	________
			subtotal: ________
Dinner:	roasted chicken breast, with skin, 1/2 breast		________
	brown rice	1 cup	________
	cola	12 oz	________
	apple pie	1/6 pie	________
			subtotal: ________
Snacks:	taco	2 tacos	
	cola	12 oz	
			subtotal: ________

How many calories did Nicholas eat? Add the subtotals for all the meals above.

________ + ________ + ________ + ________ = ________
breakfast lunch dinner snacks Total Calories

The recommended number of calories for a teen boy is about 2,800. Was Nicholas' calorie intake about 2,800?

529

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Name: ______________________________ **Date:** __________

Julia's Food Diary (age 11)

Use the **Pyramid Power Book** to find and to write down the number of calories for each of the foods listed below.

Meal	**Food Eaten**	**Amount**	**Calories**
Breakfast:	white bread	1 slice	________
	margarine	1 tbsp	________
	corn flakes	1 1/4 cup	________
	skim milk	2 cups	________
			subtotal: ________
Lunch:	pancakes	3 pancakes	________
	margarine	2 tbsp	________
	strawberries	1 cup	________
	orange juice	1 cup	________
			subtotal: ________
Dinner:	beef and vegetable stew	2 cups	________
	white bread	1 slice	________
	margarine	1 tbsp	________
	tomato juice	1 cup	________
	vanilla ice cream	2 cups	________
			subtotal: ________
Snacks:	wheat crackers	8 crackers	________
	cola	36 oz	________
	bagel	1 bagel	________
	jelly	1 tbsp	________
	popsicle	1 popsicle	________
			subtotal: ________

How many calories did Julia eat? Add up the subtotals above.

________ + ________ + ________ + ________ = ________
breakfast lunch dinner snacks Total Calories

The recommended number of calories for a child of age 11 is about 2,200. Was Julia's energy intake of calories about 2,200?

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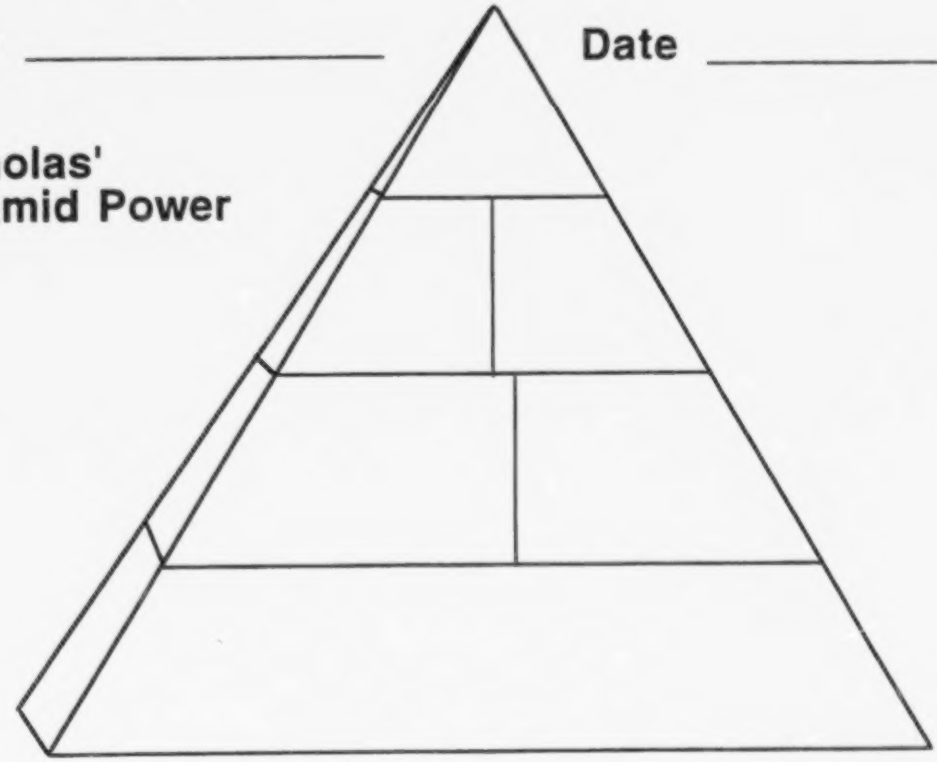
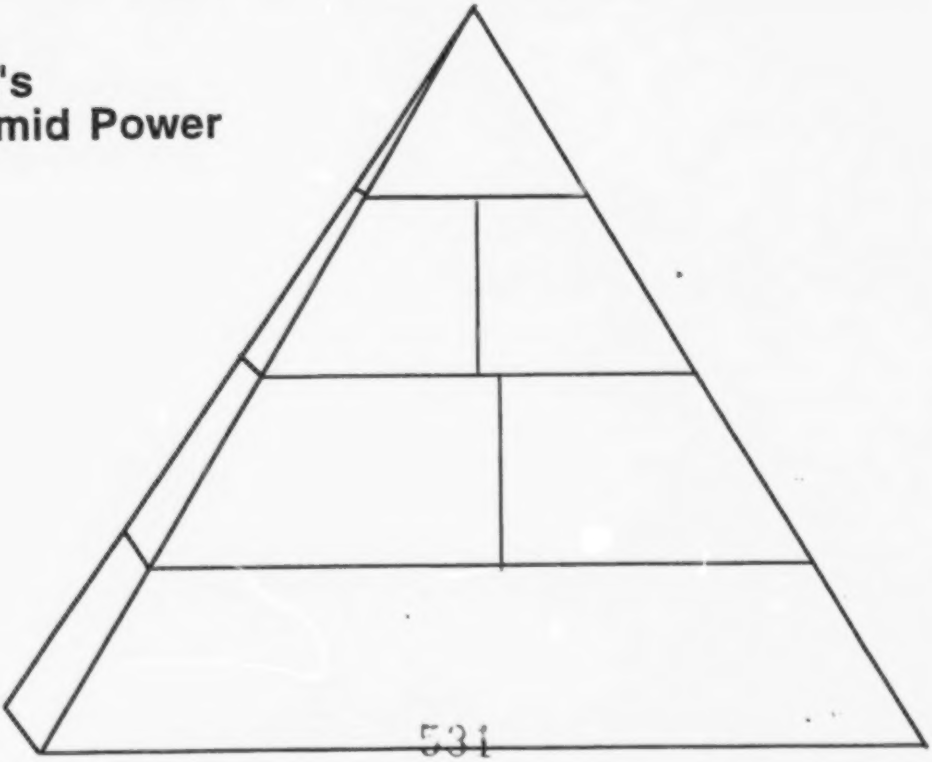
Name ____________________ **Date** ____________________

Nicholas' Pyramid Power



Julia's Pyramid Power



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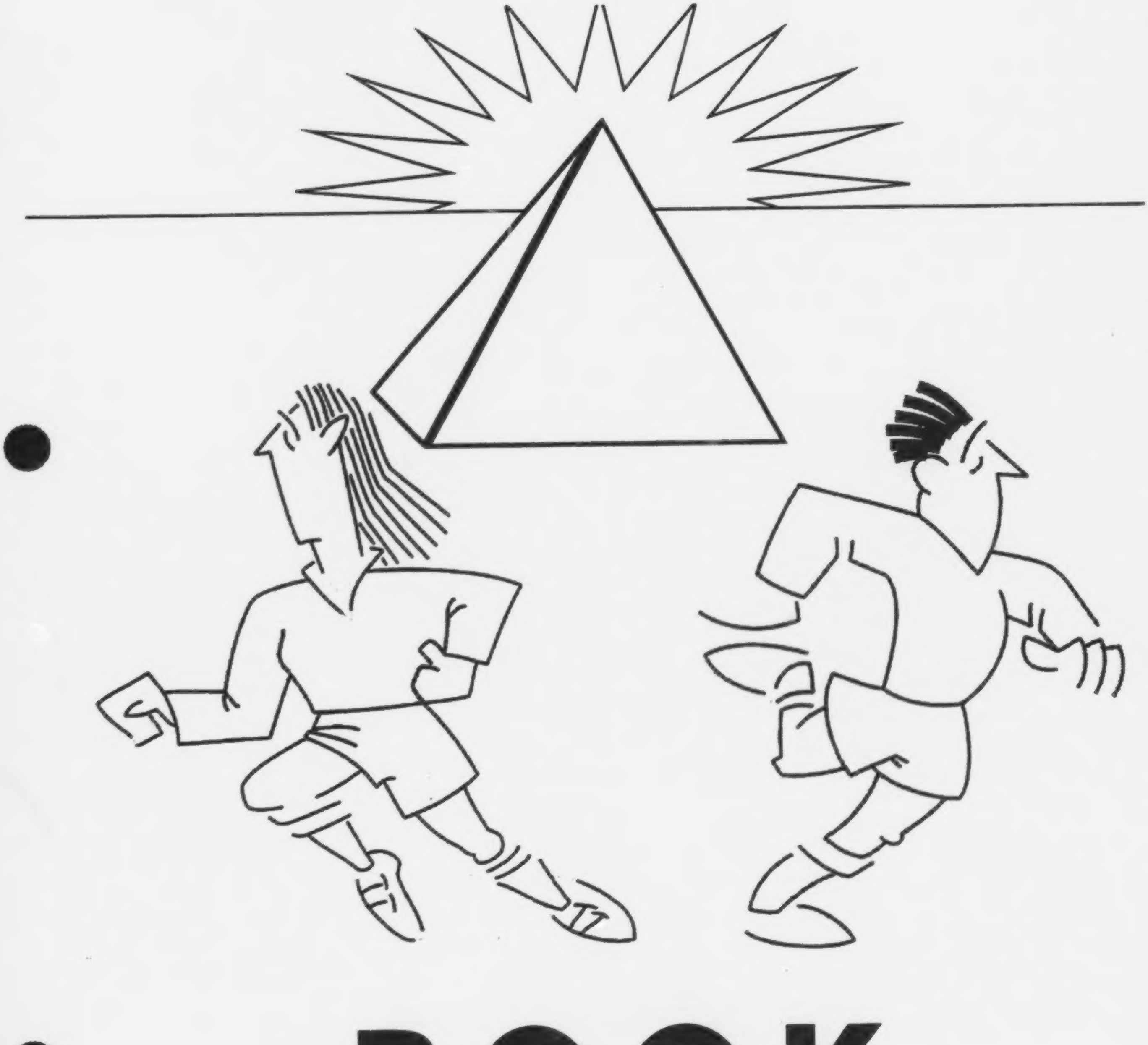
PYRAMID POWER



BOOK

Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbo-hydrate (Grams)
Beverages					
Fruit drinks:					
Fruit punch drink	6 oz	85	0	0	22
Grape drink	6 oz	100	0	0	26
Lemonade drink	6 oz	80	0	0	21
Limeade drink	6 oz	75	0	0	20
Pineapple-grape-fruit juice drink	6 oz	90	0	0	23
Soft Drinks:					
Club soda	12 oz	0	0	0	0
Cola	12 oz	160	0	0	
41					
Diet Cola	12 oz	0	0	0	0
Ginger ale	12 oz	125	0	0	32
Grape	12 oz	180	0	0	46
Lemon-lime	12 oz	155	0	0	39
Orange	12 oz	180	0	0	46
Root beer	12 oz	165	0	0	42
Dairy Products					
Cheese:					
Cheddar cheese	1 oz	115	7	9	0
Cottage cheese	1 cup	235	28	10	6
Cream cheese	1 oz	100	2	10	1
Mozzarella	1 oz	80	8	5	1
Parmesan, grated	1 tbsp	25	2	2	0
Processed American cheese	1 oz	105	6	9	0
Processed cheese spread	1 oz	80	5	6	2
Swiss cheese	1 oz	95	7	7	1
Cream:					
Half-and-half (cream and milk)	1 tbsp	20	0	2	1
Heavy cream	1 tbsp	50	0	6	1
Sour cream	1 tbsp	25	0	3	1
Whipped topping	1 tbsp	15	0	1	1
Ice cream, vanilla	1 cup	270	5	14	32
Milk:					
Whole milk	1 cup	150	8	8	11
Lowfat (2 %) milk	1 cup	120	8	5	12
Lowfat (1%) milk	1 cup	100	8	3	12
Skim	1 cup	85	8	0	12
Buttermilk	1 cup	100	8	2	12

Source: United States Department of Agriculture, Human Nutrition Information Service. Nutritive Value of Foods, Home and Garden Bulletin Number 72.

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Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbo-hydrate (Grams)
Dairy Products (continued)					
Milk beverages:					
Chocolate milk, lowfat	1 cup	160	8	3	26
Cocoa	3/4 cup	100	3	1	22
Eggnog	1 cup	340	10	19	34
Fruit-flavored yogurt	8 oz	230	10	2	43
Eggs					
Plain, raw	1 egg	75	6	5	1
Fried in margarine	1 egg	90	6	7	1
Hard-cooked	1 egg	75	6	5	1
Poached	1 egg	75	6	5	1
Scrambled	1 egg	100	7	7	1
Fats and Oils					
Butter	1 tbsp	100	0	11	0
Margarine	1 tbsp	100	0	11	0
Oils	1 tbsp	125	0	14	0
Italian Salad dressing:					
Regular	1 tbsp	80	0	9	1
Low calorie	1 tbsp	5	0	0	2
Mayonnaise	1 tbsp	100	0	11	0
Fish and Shellfish					
Fish sticks	1 fish stick	70	6	3	4
Haddock, breaded, fried	3 oz	175	17	9	7
Tuna:					
Oil pack	3 oz	165	24	7	0
Water pack	3 oz	135	30	1	0
Fruits and Fruit Juices					
Apple	1 apple	80	0	0	21
Apple juice	1 cup	115	0	0	29
Applesauce					
Sweetened	1 cup	195	0	0	51
Unsweetened	1 cup	105	0	0	28
Banana	1 banana	105	1	1	27
Grapefruit	1/2 grapefruit	40	1	0	10
Grapefruit juice, unsweetened	1 cup	95	1	0	22
Grapes	10 grapes	35	0	0	9
Kiwifruit	1 kiwifruit	45	1	0	11
Cantaloupe	1/2 melon	95	2	1	22
Honeydew	1/10 melon	45	1	0	12

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Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbo-hydrate (Grams)
Orange	1 orange	60	1	0	15
Fruits and Fruit Juices (continued)					
Orange juice	1 cup	110	2	0	26
Peaches	1 peach	35	1	0	10
Pears	1 pear	100	1	1	25
Pineapple	1 cup	75	1	1	19
Pineapple juice, unsweetened	1 cup	140	1	0	57
Plums	1 plum	35	1	0	9
Raisins	1/2 cup	220	2	0	57
Raspberries	1 cup	60	1	1	14
Strawberries	1 cup	45	1	1	10
Watermelon	1 cup	50	1	0	12
Grain Products					
Bagels	1 bagel	200	7	2	38
Biscuits	1 biscuit	95	2	3	14
Blueberry muffin	1 muffin	135	3	5	20
Breads:					
Italian	1 slice	85	3	0	17
Pita bread	1 pita	165	6	1	12
Wheat or white	1 slice	65	2	1	12
Breakfast cereals:					
Oatmeal					
Plain	1 pkt	105	4	2	18
Flavored	1 pkt	160	5	2	31
Ready to Eat:					
Corn Flakes	1 1/4 cup	110	2	0	24
Raisin Bran	3/4 cup	90	3	1	21
Sugar Frosted Flakes	3/4 cup	110	1	0	26
Cakes:					
Angelfood cake	1/12 cake	125	3	0	29
Pound cake	1/17 cake	120	2	5	15
Yellow with chocolate frosting	1/6 of cake	245	2	11	39
Cookies:					
Brownies with nuts	1 brownie	100	1	4	16
Chocolate chip cookies	4 cookies	180	2	9	28
Oatmeal raisin cookies	4 cookies	245	3	10	36
Peanut butter cookies	4 cookies	245	4	14	28
Sugar cookies	4 cookies	235	2	12	31
Corn chips	1 oz	155	2	9	16
Crackers:					
Graham	2 crackers	60	1	1	11
Saltines	4 crackers	50	1	1	9

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Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbo-hydrate (Grams)
Wheat	4 crackers	35	1	1	5
Grain Products (continued)					
Croissant	1 croissant	235	5	12	27
Doughnut	1 doughnut	210	3	12	24
English muffin	1 muffin	140	5	1	27
French toast	1 slice	155	6	7	17
Pancake	1 pancake	60	2	2	8
Pies:					
Apple pie	1/6 pie	405	3	18	60
Pecan pie	1/6 pie	575	7	32	71
Pumpkin pie	1/6 pie	320	6	17	37
Popcorn	1 cup	30	1	0	6
Pretzels:					
stick (2 1/4 inches long)	10 pretzels	10	0	0	2
twisted, Dutch	pretzel	65	2	1	13
Rice:					
Brown rice	1 cup	230	5	1	48
White rice	1 cup	225	4	0	50
Rolls:					
Dinner roll	1 roll	85	2	2	14
Hard roll	1 roll	155	5	2	30
Hot dog/hamburger bun	1 roll	115	3	2	20
Hoagie or submarine roll	1 roll	400	11	8	72
Spaghetti	1 cup	155	5	1	32
Toaster pastries	1 pastry	210	2	6	38
Tortilla	1 tortilla	65	2	1	13
Waffles	1 waffle	205	7	8	27
Legumes, Nuts, and Seeds					
Beans, cooked or canned:					
Black	1 cup	225	15	1	41
Kidney	1 cup	230	15	1	42
Lentils	1 cup	215	16	1	38
Pinto	1 cup	265	15	1	49
Canned beans:					
Refried	1 cup	295	18	3	51
White beans with frankfurter	1 cup	365	19	18	32
White beans, pork, tomato sauce	1 cup	310	16	7	48
Peanut butter	1 tbsp	95	5	8	42
Tofu	1 piece	85	9	5	3

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Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbohydrate (Grams)
Meat and Meat Products					
Bacon	3 slices	110	6	9	0
Chopped ham	2 slices	95	7	7	0
Ground beef patty	3 oz	245	20	18	0
Ham	3 oz	250	21	18	0
Lamb chop, broiled	2.2 oz	220	20	15	0
Pork chop, broiled	3.1 oz	275	24	19	0
Sausages:					
Bologna	2 slices	180	7	16	2
Brown and serve	1 link	50	2	5	0
Frankfurter	1 frankfurter	145	5	13	1
Pork link	1 link	50	3	4	0
Sirloin steak, broiled	3 oz	240	23	15	0
Veal cutlet, broiled	3 oz	185	23	9	0
Mixed Dishes and Fast Foods					
Mixed dishes:					
Beef and vegetable stew	1 cup	220	16	11	15
Beef potpie	1 piece	515	21	30	39
Chicken a la king	1 cup	470	27	34	12
Chicken potpie, 9-inch pie	1/3 pie	545	23	31	42
Macaroni and cheese	1 cup	230	9	10	26
Spaghetti in tomato sauce with cheese	1 cup	190	6	2	39
Spaghetti with meatballs and tomato sauce	1 cup	260	12	10	29
Fast food entrees:					
Cheeseburger	1 sandwich	300	15	15	28
English muffin, egg, cheese, and bacon	1 sandwich	360	18	18	31
Fish sandwich with cheese	1 sandwich	420	16	23	39
Hamburger	1 sandwich	245	12	11	28
Pizza, cheese	1 slice	290	15	9	39
Roast beef sandwich	1 sandwich	345	22	13	34
Taco	1 taco	195	9	11	15
Poultry and Poultry Products					
Fried Chicken batter dipped:					
Breast	1/2 breast	365	35	18	13
Drumstick	3 oz	195	16	11	6

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Pyramid Power

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbohydrate (Grams)
Poultry and Poultry Products (continued)					
Roasted Chicken with skin:					
Breast	1/2 breast	140	27	3	0
Drumstick	3 oz	75	12	2	0
Turkey, roasted	3 pieces	145	25	4	0
Soups, Sauces, and Gravies					
Soups:					
Chicken noodle	1 cup	75	4	2	9
Cream of chicken	1 cup	190	7	11	15
Cream of mushroom	1 cup	205	6	14	15
Cream of tomato	1 cup	160	6	6	22
Vegetable beef	1 cup	80	6	2	10
Vegetable	1 cup	70	2	2	12
Gravies:					
Beef	1 cup	125	9	5	11
Chicken	1 cup	190	5	14	13
Sugars and Sweets					
Caramels, plain or chocolate	1 oz	115	1	3	22
Chocolate bar	1 oz	145	2	9	16
Fudge	1 oz	115	1	3	21
Gum drops	1 oz	100	0	0	25
Hard candy	1 oz	110	0	0	28
Jelly beans	1 oz	105	0	0	26
Marshmallows	1 oz	90	1	0	23
Jams and preserves	1 tbsp	55	0	0	14
Jellies	1 tbsp	50	0	0	13
Popsicle	1 popsicle	70	0	0	18
Puddings:					
Chocolate	5-oz can	205	3	11	30
Tapioca	5-oz can	160	3	5	28
Vanilla	1/2 cup	150	4	4	27
Vegetables and Vegetable Products					
Asparagus	1 cup	45	5	1	8
Beans:					
Lima	1 cup	170	10	1	32
Green	1 cup	45	2	0	10

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Pyramid Power

Vegetables and Vegetable Products (continued)

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbohydrate (Grams)
Broccoli:					
Cooked	1 cup	45	5	0	9
Raw	1 spear	40	4	1	8
Brussels sprouts	1 cup	60	4	1	13
Cabbage	1 cup	30	1	0	7
Carrots:					
Cooked	1 cup	55	2	0	12
Raw	1 carrot	30	1	0	7
Cauliflower	1 cup	35	3	0	7
Celery	1 stalk	5	0	0	1
Corn	1 cup	135	5	0	34
Lettuce	1 cup	5	1	0	1
Mushrooms	1 cup	20	1	0	3
Onions	1 cup	55	2	0	12
Peas	1 cup	115	8	1	21
Potatoes:					
Baked, no skin	1 potato	145	3	0	34
Boiled, peeled	1 potato	115	2	0	27
French fried	10 strips	160	2	8	20
Potato products:					
Potatoes au gratin	1 cup	325	12	19	28
Mashed	1 cup	235	4	12	32
Potato chips	10 chips	105	1	7	10
Sweet potatoes, boiled	1 potato	160	2	0	37
Sweet potatoes, candied	1 piece	145	1	3	29
Tomato	1 tomato	25	1	0	5
Tomato juice	1 cup	40	2	0	10
Tomato sauce	1 cup	75	3	0	18
Sweet pepper	1 pepper	20	1	0	4
Vegetables, mixed	1 cup	75	4	0	15

Miscellaneous Items

Food	Amount	Food Energy (Calories)	Protein (Grams)	Fat (Grams)	Carbohydrate (Grams)
Catsup/Ketchup	1 tbsp	15	0	0	4
Dill pickles	1 pickle	5	0	0	1
Mustard	1 tsp	5	0	0	0

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ENERGY OUTPUT SURVEY
Lesson 33

Grades 4-6 "Energy Choices"
Curriculum Connection: Health/Physical Education
Instructional Time: 30 minutes/part (2 parts)
Student Vocabulary: balance, expenditure, measurable, realistic, physical activity

NUTRITION OVERVIEW

We all know exercise is part of a healthy lifestyle. Tracking and evaluating energy output is the focus of this lesson.

OBJECTIVES

The student will complete an energy output survey and rate his/her activity level.

The student will generate his/her own ways to realistically increase energy output.

MATERIALS

Worksheets: (one per student)
- *It's Your Move!* (at the end of this lesson)
- *Ways to Move More!* (at the end of this lesson)
- *Goal Keeper!* (at the end of this lesson)

INFORMATION FOR TEACHERS

- The actual number of calories we burn depends on many factors such as age, size, gender, physical activity, and individual needs (rapid growth phase etc.,).
- Most students in your class will burn approximately the same number of calories when engaged in "resting"activities (sitting in class, watching television, sleeping, etc.). However, differences will occur when they have opportunities to burn extra energy through physical activity (i.e., before school, during physical education or recess, and by involvement in after-school recreational activities).
- On average, children use about 2,200 Calories a day. This energy expenditure can be divided into three components: resting expenditure, digestion of food and physical

activity. Approximately 1,320 Calories (60%) are used for resting activities. Another 220 Calories (10%) are used to digest the foods eaten. The remaining 660 Calories (30%) are for physical activities such as running, walking, playing games.

- Physical activity is the one area of energy output we have control over. This is a big reason why weight loss programs include physical activity as a core component. The more energy one expends, the more calories required. If additional calories are not consumed, stored energy (fat) is used and weight loss occurs.
- Most young people do not get enough exercise. Statistics show that only about one-half of U.S. young people (ages 12 - 21 years) regularly participate in vigorous physical activity and one-fourth report no vigorous physical activity.

Resting energy expenditure is generally viewed as unchangeable. However, persons who have increased their muscle mass through strength training, ultimately will burn more calories at rest. Muscle has a higher metabolic rate than fat tissue.

- Participation in all types of physical activity declines strikingly as age or grade in school increases. Interventions targeting physical education in elementary school can substantially increase the amount of time students spend being physically active in physical education class.

(Some of the above information obtained from the Surgeon General's Report on Physical Activity and Health, 1996.)

STEPS TO FOLLOW

Part A

1. Ask students if they think everyone in their class burns the same amount of calories each day. Discuss the idea that the number of calories we burn depends on our age, size, gender, physical activity and individual needs (rapid growth phase, extra activity through after-school sports, etc.). Explain that most students in the class will burn approximately the same number of calories when sitting and sleeping, but differences will occur when they have opportunities to burn extra energy. Ask students to name some of those times. Four times should be highlighted: before school, after school, recess, and physical education class.

ask

2. Ask students to recall the number of calories students their age generally consume each day and to guess how those 2,200 Calories are used. Explain that approximately 60% of our total calorie output, or 1,320 Calories, is used for

ask

resting activities such sleeping, breathing, and blinking. Another 10% of our total calorie output, or 220 Calories, is used to digest the foods we eat. Ask what remaining percent of our total output is left (60 + 10 = 70, so approximately 30 % is left). The remaining 30% of our output, or 660 Calories, is for physical activities like running, walking, playing games. Point out that we can control our physical activity, but not the energy required for resting and digesting food.

ask

3. Distribute *It's Your Move!* surveys and direct it's completion.
4. Facilitate the sharing of surveys, if desired.
5. Instruct students to review the *It's Your Move!* surveys to determine their activity level. Explain that if he/she answered the majority of questions "almost never," then his/her activity level would be low. However, if more time is spent on "almost always" activities, then the activity level would be high.
6. Ask students to consider whether the surveys indicate that more activity is needed.

ask

7. Distribute the *Ways to Move More!* worksheet and direct completion. Encourage students to share their ideas.
8. Reiterate that regular participation in physical activity is important for good health. Ideally, this is approximately thirty minutes or more of moderate activity most days of the week.
9. End this lesson by taking your class for a walk around the playground to illustrate that physical activity is fun, and feels good. Summarize that more energy is used when more effort is put into movement. Perhaps students could take turns demonstrating ways they would put more effort into movement (i.e., pumping their arms, picking up the pace, skipping etc.).

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Part B
Now students will learn how to set goals to improve their energy output patterns.

ask

1. Ask students if they have ever made a "New Year's Resolution." Some students may wish to share resolutions they have made. Ask whether they ever kept their resolution and, if they have, for how long.

2. Explain that resolutions are like goals. Goals help us to determine what we want to personally achieve at a given time. Most resolutions do not work because they are too strict or not specific enough. Some people say they will exercise more, but never say what more means or even what type of exercise they want to do. One person might say that he/she wants to lose 10 pounds by Friday, while another wants to lose it in one year. The first goal is much too short for good health. The second goal is too long to monitor. In order to accomplish a task effectively, small goals must be set. In this lesson, students will learn how to set personal health goals.

3. Present goal setting: Goals give us something specific to aim toward. They help us focus on one area. Setting effective goals helps to increase our ability to attain goals. Goals can be long-term or short-term. Short-term goals are usually smaller parts of a larger, long-term goal and increase our chances of reaching our long-term goals.

   Here is an example of a long-term goal. Evaluate it, using the questions that follow:

   "This school year, my final grade in all subjects will be an A."

   1. Is the goal specific?

   Yes, the student who set this goal stated it in specific terms.

   2. Is the goal attainable and realistic?

   The student may or may not be able to attain this goal. If the student is normally an A/B student, the chances of the student achieving the goal are better than if the student usually earns Cs and Ds. In addition, some things might happen beyond the student's control (illness, for example) or the student might have weaknesses in some areas.

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3. Is the goal measurable?

Yes, the student can definitely measure this goal.

4. Is the long-term goal broken down into short-term goals?

No, this goal does not have short-term goals. Perhaps the student could set shorter term goals, breaking the long-term goal into separate components. For example, "I will get at least a B on each quiz and As on all major tests" or "I will complete my assignments on time."

Other examples of goals to evaluate as a class:

I will ride my bicycle three days this week for 25 minutes each time.

I will never eat cake again.

For the next three weeks, I will think nothing but positive thoughts.

For two months, I will walk to and from school three times each week.

I will eat celery and carrots every day to lose weight.

4. Reinforce the concept that goals should be realistic, specific, and measurable.
5. Review the *It's Your Move!* surveys the students used in Part A assess their energy output. Identify areas for improvement. Direct setting of one to three personal short-term goals. Students should write these goals on the *Goal Keeper!* worksheet. Orally they may share individual goals.
6. Explain that goals can be meaningless (just "good intentions") if there isn't a procedure in place to monitor. Tracking goals by means worksheet such as the *Goal Keeper!* worksheet can help them see their progress.
7. Explain that goals are important because they give us something specific to attain and when you reach your

goals it can feel really good. However, if goals are not met, you can always revise them to make them easier to attain, more specific, or more realistic to the individual.

EXTENSIONS:

Bulletin Board Idea

- Collect articles from the newspaper about the benefits of exercise. Pin the headlines or the entire article up on the board.

- Make goals the theme of the board . Put up the words "measurable," "realistic," and "specific." Include the statement, "Set Yourself Up for Success!!"

Careers

Health Educators
Physical Fitness Instructors
Professional Athletes
Leisure Studies Researchers
Personal Trainers
Coaches
Exercise Physiologists
Physical Therapists

Class Project

- Begin a class project to set aside time each day to exercise. It may be to do jumping jacks in class, or to walk laps around the playground or gymnasium. Everyone physically capable can take part. Watch the improvement of the group and individuals. Begin with one lap or 10 jumping jacks. Increase the activity as the group becomes more accustomed to the routine. Keep record of the minutes or the miles. Set goals and chart your improvement. Celebrate when you reach your goal!

- Organize a school square dance. Possibly a "caller" would be willing to donate time if you made this a school fund raiser. Square dancing can be an aerobic workout, sure to put a smile on the face of those who participate.

Further Investigations

Social Studies

- Find out more about the people in whatever continent or country you are currently studying. How do they spend their leisure time? What are the chronic diseases the people suffer from?

Invite the Nurse

Ask the nurse to class to discuss the health benefits of exercise. The American Heart Association has excellent brochures for children as well as lesson plans and activity kits directed to children for the prevention of heart disease. Keep the message upbeat - the goal is to get the students wanting to move and enjoy movement.

I Think I Can, I Knew I Could

Use your *Goal Keeper!* worksheet for five days to monitor progress on meeting goals.

Physical Education

Have students time themselves walking one or more laps around the track to calculate their walking speed in miles per hour. If desired, have them hypothesize how difficult the moderate pace (3.5 - 4.0 mph) will be for them (easy, somewhat difficult or difficult).

Students can count how many steps they take in ten seconds. Twenty (average,adult) steps in ten seconds equals 3 mph; twenty-seven steps in ten seconds equals 4 mph.

Taking It Home

- Parents can promote fitness. Have your students write a letter to a parent seeking support for improving fitness. Suggestions might include hiking, cycling, roller skating, swimming, skiing, dancing, or walking for fun in place of movies or watching television. Invite a parent to the school playground or park to play and see the facility.

- Help the students come up with a birthday or gift list that includes play equipment to give the students a physical workout as well as fun. Jump ropes, balls, hoops, nets, rackets, tumbling mats, etc., are some ideas. Have the students find out the prices of the equipment and rank the items according to price and desire or potential health benefit.

Resources (see Resource List for description)
Games and Great Ideas : A Guide for Elementary School Physical Educators and Classroom Teachers edited by Rhonda L. Clements.

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IT'S YOUR MOVE!

Name ______________________ **Date** __________

It's Your Move!
How active are you? Do you get up and go? Take this survey to find out. Read each sentence carefully. Then decide how often you do each activity and circle AA (almost always), S (sometimes), or AN (almost never). When you have completed this worksheet, add up the number of AA, S, and AN responses.

	Almost Always	**Sometimes**	**Almost Never**
1. I take a walk or ride my bike daily.	AA	S	AN
2. I help around the house with chores that use lots of energy.	AA	S	AN
3. I get involved in active games.	AA	S	AN
4. I use lots of energy in physical education class.	AA	S	AN
5. When possible, I'm outside moving.	AA	S	AN
6. I am involved in sports, dance or a regular exercise routine.	AA	S	AN
7. When I am active, I move without stopping for at least 20 minutes.	AA	S	AN
8. I do things like skip rope or play running games at recess.	AA	S	AN
9. I spend more time moving than watching television.	AA	S	AN

Count your circled responses. Write the numbers in the blanks.
AA = ______ S = ______ AN = ______

Rate your energy moves!
- If you had mostly "almost never" responses - try to find ways to move more.
- If you had mostly "almost always" responses you are active - keep it up!

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WAYS TO MOVE MORE!

Did the results from the "It's Your Move" survey surprise you? If you had mostly "almost never" responses, you might need to move more often.

Physical activity is an important part of health and it can be really fun. All you need to do is to pick an activity that makes your heart beat fast and do it for thirty minutes. Here are some ideas.

- Walk to school or to your friend's house.
- Help out around the house with chores that burn lots of energy. Examples are sweeping floors, raking leaves, shoveling snow.
- Walk your dog (or your neighbor's dog).
- Try harder in physical education class.
- For every minute you spend watching television, spend the same amount of time being physically active.
- Join a sports team or an active club.

Now think of two ways you could add more physical activity to your life. Write your ideas below. Then decide if each idea is realistic.

1. To add more activity to my life, I will:

   ____

   ____

   Is this realistic? (Will I really do this?) _____ Why or why not?

   Explain:______________________________________

2. To add more activity to my life, I could:________________

   ____

   Is this realistic? ________ Why or why not? Explain.

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10 of 10

Name:______________________________ **Date:**__________________

GOAL KEEPER!

Write down your goals on the left side under "Goals. " Mark an "X" in the boxes on the right side each day you reach that goal!

GOALS

1					
2					
3					
	M MONDAY	TU TUESDAY	W WEDNESDAY	TH THURSDAY	F FRIDAY

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ON YOUR OWN: MAKING SMART ENERGY CHOICES

Lesson 34

Grades 4-6 "Energy Choices"
Curriculum Connections: Health/Math
Instructional Time: 30 minutes/part (3 parts)
Student Vocabulary: nutrient-dense, restaurant, nutritious

NUTRITION OVERVIEW

Planning nutritious breakfasts and snacks can help all of us. In this lesson, students will gather nutrition information and make food choices based on this information.

OBJECTIVES

The student will plan at least three nutritious breakfasts that can be prepared quickly and easily and contribute to the day's total nutritional intake.

The student will plan at least three snacks that can be prepared quickly and easily and contribute to the day's total nutritional intake.

The student will plan at least one healthful meal from each of three popular fast food restaurants.

MATERIALS

Nutrition information from popular fast food restaurants (may need to make photocopies). This information is needed for **Part C**. Addresses are provided; students can participate in requesting information if desired.

Worksheets: *Breakfast - It's in the Bag!* (at the end of this lesson)
Snack Attack! (at the end of this lesson)
Not So Fast... Making a Game Plan for Fast Food Dining (at the end of this lesson)
(Optional) *Check it Out!* worksheet (at the end of this lesson)

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INFORMATION FOR TEACHERS*

Information adapted from How to Teach Nutrition to Kids (24 Carrot Press, 1995). Used with permission.

- As children become more self-reliant at an earlier age, a "teachable moment" exists for strengthening food-related life skills. Children are increasingly the caretakers of their own nutrition. A 1991 Gallup survey found that 87 percent of the fourth through eighth graders sampled said that they cook or make some of their own meals. Eighty-three percent said they sometimes prepare their own snacks and eight out of ten sometimes cook or make their own breakfast. Surprisingly, more than half of the kids surveyed actually buy the food for their own meals or snacks.

- Children who don't know how to cook often rely on packaged foods of questionable nutritional quality. For this growing number of young consumers, nutrition education can really work when concepts are practical and applied, emphasizing skills like meal planning, label reading, and cooking. Kids who are on their own for meals can immediately translate their nutrition knowledge into healthy eating behavior.

- Because of their smaller stomach capacity and tremendous energy needs, children require frequent meals and snacks. Behavior problems at times are merely the result of an empty stomach. Somehow, "snacking" has taken on a negative connotation in our society, perhaps because it is often linked with foods of low nutrient density. Chosen properly, snacks can and do make a big contribution to daily nutrition. Healthful snacks should mirror meals - emphasizing healthful foods, but in smaller quantities.

- Breakfast is the meal most directly connected to school achievement. Children who skip breakfast have shorter attention spans, do poorly in tasks requiring concentration, and even score lower on standard achievement tests. When researchers compared the diets of children who regularly eat breakfast with those who don't, they found that the breakfast skippers never fully compensate for the missed meal throughout the day. Children who ate a morning meal took in far more nutrients over the course of the day than those who missed breakfast.

- When children eat several meals each week at fast food restaurants, it is very likely that they will consume an excess amount of fat and calories. Students can more easily balance their daily food choices if they become informed about the nutrient content in fast foods and learn to plan their meals accordingly.

STEPS TO FOLLOW

Part A

1. Take an informal poll, asking students how many of them:
   a. eat breakfast most days
   b. prepare their own breakfast most days
   c. prepare their own snacks most days
   d. decide what they will eat when dining at a restaurant
   Tally the results on the board. Explain/discuss the importance of learning to make independent and informed choices about food and eating.

If you are concerned that students may feel this is personal, you or your students may conduct a poll of other students before the day of the lesson and report results. Other options would be to take the poll anonymously, or just discuss questions A through D.

ask

2. Explain the importance of the breakfast meal, describing how it literally "breaks the fast," providing fuel for both body and brain. Ask students to calculate how many hours normally elapse between the evening meal or evening snack and breakfast. Point out that breakfast has been proven to affect how well students perform academically, especially during the morning hours.

3. Distribute *Breakfast - it's in the Bag!* worksheets. Explain the importance of making a plan for breakfast. Allow students to complete the worksheet either in small groups or independently. Facilitate sharing of responses.

4. Mystery Activity: Students are asked to write down three of their favorite ingredients at the bottom of this worksheet. In pairs or small groups, have students share their three ingredients. Assign them to combine these foods to create a "meal." For example, if the students wrote eggs, bananas, peanut butter, celery, ice cream and cereal; their menu might be a banana and celery omelet with a peanut butter and cereal ice cream sundae. The object is to be creative and have fun!

Part B

ask

1. Ask the students what the word "snack" means to them. Write responses on the board. Ask how many think snacking is a good habit or a bad habit. Explain/discuss that snacking is an important way to keep the body fueled throughout the day. Encourage students to think of snacks as "mini-meals" and to choose foods from the

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food groups as opposed to a time to eat solely from the pyramid "tip."

2. Distribute the *Snack Attack!* worksheets. Explain the importance of making a plan for snacktime. Allow students to complete the worksheet, either in small groups or independently. Facilitate the sharing of responses.

Part C

1. Ask how many students eat at fast food restaurants. How often? Ask students to volunteer their favorite items. Draw a blank pyramid on the blackboard and place check marks or asterisks in each food group representing the students' favorite fast food items.

   Draw students' attention to the empty (or nearly empty) food groups on the pyramid - the Vegetable, Fruit and Milk, Yogurt and Cheese groups. Explain that many of the items offered at fast food restaurants can contribute too much fat and calories to the diet, especially if eaten frequently. Reinforce that almost everyone relies on fast food at times. Suggest that by planning ahead students can make more healthful choices.

Teachers need to send for fast food nutrition information ahead of time. You may want to involve your students in gathering this information. Students may write for nutrition brochures using the addresses in this lesson. Some restaurants may have nutrition information on hand, just ask!

2. Pass out the *Not So Fast - Making a Game Plan for Fast Food Dining* worksheet. Make available several nutrition information brochures from popular fast food restaurants.

   Review the general guidelines for fast food meal planning included on the worksheet (600 - 800 Calories; 20 - 27 grams of fat; and at least three food groups represented). Allow students to complete the worksheet, either in small groups or independently.

3. Conclude with a discussion of ways students can apply good nutrition to their everyday food choices and form positive nutrition habits that will help them throughout their lives.

EXTENSIONS

Act It Out

- Pretend you are encouraging a young child to eat breakfast and she/he is resisting. What would you say to him/her to convince him/her breakfast is important?

- Create a dialogue:
  Pretend you are a body talking. You've just received a low nutrient-dense meal (lots of "tip" foods - adequate in energy but insufficient vitamins and minerals). Describe how you feel.

- Pretend you are a body talking. You just received a high nutrient-dense meal (foods from at least 3 of the major food groups and a variety of important vitamins and minerals). Describe how you feel.

Bulletin Board Idea

- Using the information below, make a display of fast food nutrition brochures accompanied by "suggested menus" that emphasize the principles of good nutrition.

- Communicate with various fast food restaurants and request brochures with nutritional values of the food. Listed in this lesson are some common fast food restaurants, their addresses and Web addresses to search on the internet. If searching on the internet, simply type the address at the prompt to view home pages of fast food restaurants.

- Make a fast food poster display which features "real food" (the actual food wrapper is stuffed with tissue to make it look real). Next to it place the total grams of fat and illustrate the amount of fat with margarine pats (cut out yellow squares of cardstock 1x1). Each pat represents 4 grams of fat. For example: a deluxe hamburger that contains 35 grams of fat would have 9 margarine pats next to it. Round to the nearest half or whole number. For half numbers, cut the margarine pat in half. A variation of this would be a table top display which uses teaspoons of yellow vegetable shortening in place of margarine pats. A teaspoon of vegetable shortening also represents 4 grams of fat.

- Try to include some comparisons between similar products such as those listed below. You may find this information in restaurant nutrition information brochures or fast food guide books.
  Examples:
  – Plain baked potato vs. loaded baked potato vs. large fries
  – Fried fish meal vs. baked fish meal
  – Hard ice cream vs. soft serve ice cream vs. frozen yogurt
  – Fried chicken sandwich vs. grilled chicken sandwich
  – Regular fat items vs. lower fat version

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- If you are interested in providing students with more fast food facts, the following books may be of interest to you.

Fast Food Guide, 1991. Cost-$7.95
Produced by: The Center for Science in the Public Interest
Suite 300
1875 Connecticut Ave., NW
Washington, DC. 20009-5728
phone: (202)332-9110
fax: (202)265-4954

Note: You may be able to buy this book in your local bookstore at a lower cost.

Fast Food Facts, 1990 by Marion J. Franz, R.D., M.S. Cost-$6.95,
ISBN 0-937721-67-0
Produced by: The International Diabetes Center
For purchasing information, write to:
DCI Publishing
P.O. Box 739
Wayzata, MN 55391

Note: You may also find this book in your local bookstore.

Restaurant Name	**Mailing Address**	**WWW Address**
Arby's	AFA Service Corporation Suite 700/10 Piedmont Center 3495 Piedmont Rd., NE Atlanta, GA 30305	
Burger King	Consumer Information M/S 1441 P.O. Box 520783 General Mail Facility Miami, FL 33152	http://www.issb.com/directory/b/bking/
Hardee's	Hardee Public Relations Dept. 1233 Hardee's Blvd. Rocky Mount, NC 27804	
Kentucky Fried Chicken	Public Affairs Department P.O. Box 32070 Louisville, KY 40232-2070	http://www.Kentuckyfriedchicken.com/
McDonalds	McDonalds Nutrition Information Center McDonalds Corporation Oak Brook, IL 60521	http://www.McDonalds.com/
Pizza Hut, Inc.	Consumer Affairs Dept. P.O. Box 428 Wichita, KS 67201	
Roy Rogers	Marriott Corporation Marriott Drive Washington, DC 20058	
Subway		http://www.subway.com/
Taco Bell	16808 Armstrong Ave Irvine, CA 92714	http://www.csh.rit.edu/~gentry/tbnet.html
Wendy's	Wendy's International, Inc. Consumer Affairs Dept. 4288 West Dublin Granville Rd P.O. Box 256 Dublin, Ohio 43017	http://invest.quest.columbus.oh.us/InvestQuest/w/wen/

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Class Project

- Suppose your class won a trip to Hawaii. However, only enough money was provided to pay for airfare and hotel. All food will have to be taken along in suitcases. Plan a three day menu. Divide the class into small groups and assign each a meal or snack for a particular day. Establish rules as desired (e.g. "there is or is not refrigeration and cooking facilities" or "fresh milk is the only item that will be provided").

- Show the National Dairy Council's video: E.A.G.A.H.B.E.D.D. ("Eat a Good and Healthy Breakfast Every Day" Day), and discuss the importance of eating breakfast. Have your students review the consequences of skipping breakfast, as presented in the video.

Food Service Cooperation

Invite the Food Service Director to share information on the school breakfast program and the choices that are available each day. Compare the school breakfast with the breakfast available at fast food restaurants.

Further Investigations
Language Arts

- Use the following addresses to request nutrition information from fast food corporations.

Arby's
AFA Service Corporation
Suite 700/10 Piedmont
Center
3495 Piedmont Rd., NE
Atlanta, GA 30305

McDonalds
McDonalds Nutrition
Information Center
McDonalds Corporation
Oak Brook, IL 60521

Wendy's
4288 West Dublin
Granville Road
P.O. Box 256
Dublin, Ohio 43017

Burger King
Consumer Information
M/S 1441
P.O. Box 520783
General Mail Facility
Miami, FL 33152

Pizza Hut, Inc.
Consumer Affairs Dept.
P.O. Box 428
Wichita, KS 67201

Hardee's
Hardee Public Relations
Dept.
1233 Hardee's Blvd.
Rocky Mount, NC 27804

Roy Rogers
Marriott Corporation
Marriott Drive
Washington, DC 20058

Taco Bell
16808 Armstrong Ave
Irvine, CA 92714

Kentucky Fried Chicken
Public Affairs Department
P.O. Box 32070
Louisville, KY
40232-2070

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Taking It Home

- Encourage students to share the information they learned about fast food dining with other family members.
- Challenge the students to try a lower fat food item next time they eat fast food. Inform the class; would he/she recommend this food item and why or why not?
- Assign students *Check it Out!* (at the end of this lesson) to complete at home. Have students share their findings with parents. Suggested food labels to read include breakfast cereals and favorite snack foods.

Resources (See Resource List for descriptions)
Fast Food Guide by The Center for Science in the Public Interest
Fast Food Facts by Marion J. Franz
E.A.G.A.H.B.E.D.D. "Eat a Good and Healthy Breakfast Everyday" a video produced by the Dairy Council

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BREAKFAST-IT'S IN THE BAG!

Name: ______________________ Date: ______________________

Your body sends a signal when it's hungry and it needs energy and nutrients. If you eat a slice of pizza and a glass of orange juice for breakfast, your body doesn't know this isn't a typical breakfast. It says "Cool! energy, Vitamin C, calcium and other nutrients I can really use."

Breakfast fuels both your body and your mind. If you find that you are short on time in the morning, give one of these strategies a try:

Eat leftovers.
Get up 15 minutes earlier.
Eat breakfast at school.
Pack breakfast in a bag the night before and try to include items from at least three food groups. Some examples are:
  - one bagel, string cheese, and an apple (buy milk at school)
  - peanut butter, crackers and a banana (buy milk at school)

What are your ideas for a quick breakfast on a school day?

In the space that follows, plan three easy and nutritious Saturday morning breakfasts that you can prepare on your own.

Write down three of your favorite ingredients for a group activity your teacher will explain later. (Examples: cheese, peanut butter, banana, ice cream, carrots, eggs, juice, etc.)

1.

2.

3.

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SNACK ATTACK!

Name: ______________________ Date: ______________________

Snacks are an important way to keep your body fueled all day long. Think of snacks as "mini-meals" made up of the same kinds of nutritious food that you eat at breakfast, lunch, and dinner. Below are some examples of nutritious, easy-to-fix snacks.

- Cold cereal with lowfat milk
- Peanut butter and banana sandwich
- English muffin halves topped with pizza sauce, vegetables and cheese.
- Pretzels or pretzel chips and string cheese
- Yogurt with fresh fruit (blueberries or strawberries) or cereal (granola or Rice Krispies)
- Bran, fruit, or nut muffin
- Fresh fruit cooler (blend fruit, ice, honey, and milk together)

* Some snack ideas adapted from How to Teach Nutrition to Kids (24 Carrot Press, 1995). Used with permission.

Now it's your turn!

In the following space, plan three easy and nutritious snacks that you can prepare on your own. Include items from at least two of the food groups for each snack you plan.

1. ______________________________

2. ______________________________

3. ______________________________

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NOT SO FAST...MAKING A GAME PLAN FOR FAST FOOD DINING

Name: ______________________ Date: ______________________

Planning is the key to eating balanced meals when dining at fast food restaurants. The following general guidelines can help. Also, many fast food restaurants distribute detailed nutrition information for the foods they serve, just ask!

- 600 to 800 total calories for one meal
- 20 to 27 total grams of fat for one meal
- At least three food groups represented in each meal
- Limit use of mayonnaise; ketchup and mustard are great choices instead!
- Choose baked foods, go easy on fried
- Avoid extra large meals (i.e., SUPER size meals)

If you choose a meal that exceeds the above guidelines, balance your food choices during the rest of the day. Use the example below to make a guide to follow. Gather information from a variety of fast food restaurants and plan meals that fit guidelines for good health.

Example: RESTAURANT: Taco Bell™

Food Item	Calories per Serving	Fat grams per Serving	Food Group
Chicken Burrito	345	13	meat, grain, dairy
Salsa	27	0	vegetable
Seasoned Rice	110	3	grain
Cinnamon Crisps	139	6	grain, tip
TOTALS:	621	22	4 groups

Now you try one!
RESTAURANT: ______________________

Food Item	Calories per Serving	Fat grams per Serving	Food Group
TOTALS			

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CHECK IT OUT! WORKSHEET

Name: ______________________________ Date: ________________________

"Nutrition Facts" are printed on all packaged foods. Reading and understanding these facts is a great way to get to know more about the foods you eat.

Look at the "Nutrition Facts" label on the food package you find at home. Answer the following questions:

1. What is the name of your food and what is the serving size?

2. Does the serving size match how much you usually eat?

3. It is important to get enough of the nutrients listed below in our diet each day. A food is considered a "GOOD SOURCE" of a nutrient if it provides 10% or more of the daily value (%DV).

   Is your food a good source of any of these nutrients?

	% DAILY VALUE	**CHECK IF GREATER THAN 10%**
Dietary Fiber	__________________	______
Vitamin A	__________________	______
Vitamin C	__________________	______
Calcium	__________________	______
Iron	__________________	______

** If you checked most of the categories, this food is loaded with important nutrients for good health.

** If you did not check a lot of categories, this food is mostly energy (calories).

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EveryBODY a GREAT Body!

Lesson 35

Grade 6 "Energy Choices"
Curriculum Connection: Health/Social Studies
Instructional Time: 40 minutes/part (3 parts)
Student Vocabulary: advertisement, body image, diet, ectomorph, endomorph, genetics, media, mesomorph, self- esteem

NUTRITION OVERVIEW

Students will learn that focusing on overall well-being and creative individuality is more healthful than trying to achieve the unrealistic "ideal" body that is often promoted by the media.

OBJECTIVES

Students will learn that natural body shapes and sizes differ, and that these differences should be accepted and celebrated, rather than criticized as part of the culture's current glorification of thinness and fear of fat.

Students will explore their own body image and be empowered to develop it more positively.

Students will learn about how individuals try to change their bodies – both in healthy and unhealthy ways – by evaluating articles in newspapers and magazines.

MATERIALS

Magazines, particularly popular magazines for young teenagers
Newspapers

Note: Newspapers can be brought in from home or donated by your local newspaper distribution center. Recycling centers might also be willing to donate newspapers and may have a good variety. Include papers that have health, food, or living sections. Many papers have established weekdays for these sections, particularly Monday, Tuesday, or Wednesday.

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INFORMATION FOR TEACHERS

- Poor body image is seen in students as young as elementary school. Body dissatisfaction can lead to disordered eating and unhealthy exercise practices for some; for many more it is emotionally disruptive. By the 3rd grade, some girls are already experiencing problems with body image and food. Boys struggle with these issues as well, although this is commonly overlooked. While girls may feel pressured to be thinner and smaller, boys may feel pressured to "bulk up" and be larger.

- Disordered eating may interfere with the normal growth and development of a child. Students should be encouraged to practice a healthy lifestyle which allows them to reach their full potential physically, intellectually, and emotionally.

- Creating an awareness of body image and body image problems in both girls and boys is an important step in the development of our young people's self-concept. Learning about the pressures felt by each gender may help increase understanding, tolerance, and respect (e.g. reduce teasing and harassment).

- The media bombards our society, including young students, with images of the "perfect body." For most, this image is unattainable, and possibly unhealthy.

- Students need to learn about self-esteem and having a positive body image before such disturbances set in.

- It should be emphasized to students that there is no one "ideal" body, and that individuals' natural shapes and sizes will differ. They should be encouraged to appreciate and understand the differences, rather than try to conform to an unrealistic standard.

- In this lesson, the word "diet" should be used to describe what a person generally eats and drinks. It should not be used only to describe the regimented plan that a person follows when he/she is trying to lose weight. Historically, the word "diet" did refer to what we usually eat, but has become distorted to mean a restricted form of eating.

- Discussing body image is a potentially sensitive subject for 6th grade students. Teachers need to conduct the lesson with sensitivity and care. If a teacher suspects that a student is struggling with an eating disorder or some other form of disordered eating, he/she should consult "Resources" at the end of this lesson.

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STEPS TO FOLLOW

Part A

1. Begin talking to your students about the variety that exists in all living species. For example, not all dogs look the same. There are bulldogs, greyhounds, spaniels and retrievers, to name a few. Ask students to list more examples on the chalkboard (i.e., flowers, trees, snowflakes, butterflies, cats, etc. – anything that has a variety of shapes and sizes within its species). Explain that human beings also come in a variety of shapes and sizes. This is what makes us unique individuals. Ask the students to imagine a world where everyone looked the same and had the same personality.

   ask

   Now have the students write a paragraph describing the unique physical qualities about themselves (i.e. what they think makes them special). This need not be turned in for a grade; it is just to stimulate the students' thinking about what makes each of them unique.

2. Explain that there are a variety of body sizes and shapes in the world. We are all born with a certain body type and shape. Our genes play the largest role in deciding what these will look like. Although our body shape can be changed throughout life, we must remember that we cannot change what we were born with! (body type). Ask the students how our body shape and appearance change naturally throughout life. Answers may include weight gain/loss, growth, aging, illness, disability, etc..

   ask

   With the following descriptions, it must be emphasized that these are general classifications. Not everybody fits into an exact description and that is O.K.. In fact, this adds more variety to our world! The purpose of introducing these names is to show that there are a variety of shapes and sizes and that everyBODY has a great body. There is no one "ideal." No one type or shape is better than another!

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There are three basic body-type classifications:

1) ectomorph: tall and lean build
2) endomorph: short and round build
3) mesomorph: muscular build

Along with the three body types, body shapes can be further described by five terms:

1) the pear: body measurements are relatively large around the lower body (hips, thighs, buttocks) than the upper body
2) the apple: body measurements are relatively larger around the chest, shoulders, and abdomen than the lower body
3) the box: body measurements are relatively similar from the thighs to the shoulders; the waistline is not apparent
4) the inverted triangle: body measurements are relatively larger around the shoulders and chest, and smaller around the hips
5) the hourglass figure: body measurements are relatively larger around the hips and the chest, and smaller around the waist

ask

3. Ask the students to think of other traits that are passed down to them in their genes. Write these on the chalkboard. Students should understand that just as traits such as height, hair and eye color are inherited, so are body shape and size traits. Ask students which characteristics they can change and those they cannot. Ask students to volunteer one trait that they would change about their bodies and why? What is one trait they would not change and why? (This would be an appropriate place to assign the Extension "Taking it Home".)

Part B

ask

1. Divide the students into groups. Ask them to think about the people they see in the media (i.e. on television, in movies, in magazines). They should begin a discussion in their groups and take notes, with the following questions in mind:
   - Do they see a variety of body types and sizes?
   - Does the media seem to idealize certain types of bodies?
   - How does the media portray the "ideal" woman?

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- How does the media portray the "ideal" man?
- What assumptions do we automatically make about these types?
- Do you think these body types are attainable? Are they realistic?

Students may choose to name particular individuals in the media for this discussion.

ask

2. Bring the class together and ask them to discuss the above questions. Also ask:
   - Is it a good idea to try to make your body look like your favorite sports player or television star? Why or why not?

   Emphasize that the media (including magazines, television, and the movies) shows very little variety regarding "ideal" body sizes and shapes. They are also often unrealistic. In fact, some of the images we see have been generated or "touched up" by the computer so they appear more "perfect." These sizes and shapes are unattainable for most of the population to achieve under healthy conditions. Unfortunately, these images create tremendous social pressure to "look a certain way." (This would be an appropriate place to assign the Extensions in "Class Project".)

3. Talk to the students about how our society places great value on our outer appearance, while sometimes ignoring our inner attributes. Facilitate one of the following activities:
   a) Tell the students to pretend that they have just received a pen pal in another country far away. They must write a letter to their new friend and describe themselves without using physical descriptors.

   b) Have the students break up into pairs. Instruct the students that they are to take turns describing themselves to the other person. The key to this is that they must pretend that the other person is blind and may have no concept about what it looks like to be "blond," "green-eyed," "chubby" or "skinny." Encourage them to use descriptors that are non-physical.

Part C

1. Ask the students to name the ways in which individuals try to change their bodies (i.e. dieting, exercise, weight lifting, drugs - steroids, liposuction, implant surgery, etc.). Write these on the chalkboard. Ask the students which methods are healthy? Unhealthy? Dangerous? Emphasize that many techniques discussed in the media are NOT healthy. Regimented diets (especially commercially marketed diets) can lead a person towards an obsession with weight and food. Often individuals try to change their bodies because they are dissatisfied, not because they need to make changes for health reasons. Emphasize that the body needs sufficient calories, in the form of food, to sustain life. Without sufficient calories other nutrients are burned for energy, rather than to maintain body processes. (For more information on calories, see Lesson 28, Energy Bolts!)

ask

2. Students should be encouraged to strive for overall well-being. This includes eating a balanced diet and exercising regularly. Exercising regularly may be achieved in a variety of ways. List the following activities on the chalkboard and ask the students which ones help keep them fit. In the end, they should discover that ALL of these activities can help to keep them fit (ideally they are done for a sustained period of time most days of the week):
    - walking
    - raking leaves
    - running
    - rollerblading
    - gardening
    - riding a bike
    - playing volleyball
    - mowing the lawn

ask

3. Divide the students into groups and distribute newspapers and magazines to each. Ask the students to look for articles on the topic of "Ways in which individuals try to change their bodies" to share with the class. (The teacher should provide newspaper sections and magazines which have been previously scanned for related articles.) Students should share their findings.
   Optional: Have the students research one of these methods and report back to the class.
   Optional: Have the students look through newspapers and magazines and collect articles on these subjects. They can bring these in to share with the class.

ask

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EXTENSIONS

Bulletin Board

Design a sign for the board which reads, "EveryBODY a GREAT Body."
Decorate it in one of the following ways:

a) Have each students create a "Me" collage displaying pictures, symbols, and words that represent who they are. These can relate to things they like to do, their personality, hobbies, favorite things, etc.. The students need not write their names on their collages. Display the collages on the bulletin board (or around the classroom if there is not enough room on the bulletin board).

b) Have students bring in a favorite picture of themselves. Tack these to the bulletin board. Ask the students to write down one positive aspect of their body (these can range from "My body allows me to run in my soccer games," or "My legs are long so that I can run," "My arms are strong so I can carry my heavy books" to simpler answers, "I like my hair," "I'm lucky that I have strong bones," "I like my voice"...). Fill these comments in between the student pictures.

Class Project

- Ask the students to do the following "public observation" project and report back to the class with their findings. The project entails students going to a safe, public location where there is heavy people traffic (such as the local mall). Their job is to observe the adults that walk past, keeping in mind the following questions:

Instruct the students to be discreet while performing this class project.

a) Of the first 50 adults that walked by, how many looked like the models we see in the magazines?

b) Of the people that walked past, did you notice any groups of potential relatives? Did they have similar characteristics? Similar body types? Explain.

This extension above emphasizes two points: 1) Society pressures individuals to achieve an "ideal" that is unrealistic and possibly unattainable; and 2) Genetics influences many characteristics, including body size and shape.

- Remind the students what they discussed about the types of bodies that are represented in the media in part B of the lesson. Ask the students if they are frustrated by what they are seeing (i.e., there is not a variety represented). Encourage each student to write to the editor of a popular magazine, asking them to display more realistic pictures of women and men. Collect these and send.

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Further Investigations
History/Social Studies

Have the students research a period in history to determine what the "ideal" body type was during that time for women. Give them examples such as: the paintings of Rousseau portrayed fleshier women; 1920s boyish, thin look of women; Marilyn Monroe wore a size 12 in the 1950s and she was considered an idol; Twiggy of the 1960s; a more athletic look of the 1980s, etc. Similarly, you can have the students look at different cultures around the world to see what they regard as the "ideal" body type for women.

The students can come back and give a short report to the class. They can also hang pictures of these various "ideals" throughout history and from different cultures on the bulletin board under the heading "EveryBODY a GREAT Body."

Taking it Home

Ask the students to collect pictures of as many family members and relatives as they can. Suggest that the students look specifically for characteristics that they see throughout their families, so that they can write a short report with this information. They may wish to arrange the pictures into a photo album or scrapbook with descriptors next to the pictures.

Resources - next page

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Resources (see Resource List for description)
Reviving Ophelia: Saving the Selves of Adolescent Girls by Mary Pipher
Schoolgirls: Young Women, Self-Esteem, and the Confidence Gap by Peggy Orenstein

To obtain a catalog of eating disorders books and other resources, write to:
The Gürze 1996 Eating Disorders Bookshelf Catalog
Gürze Books
P.O. Box 2238
Carlsbad, CA 92018
(800) 756-7533

Eating Disorders Organizations to Contact:

- American Anorexia/Bulimia Association (AABA)
  293 Central Park West Suite 1R
  New York, New York 10024
  (212) 501-8351

- Anorexia Nervosa and Associated Disorders (ANAD)
  P.O. Box 7
  Highland Park, IL 60035
  (847) 831-3438

- Anorexia Nervosa and Related Eating Disorders, Inc. (ANRED)
  P.O. Box 5102
  Eugene, OR 97405
  (541) 344-1144

- Center for the Study of Anorexia and Bulimia (CSAB)
  1 West 91st Street
  New York, NY 10024
  (212) 595-3449

- Eating Disorders Awareness and Prevention, Inc. (EDAP)
  603 Stewart St., Suite 803
  Seattle, WA 98101
  (206-382-3587)

- National Eating Disorders Organization (NEDO)
  6655 South Yale Ave.
  Tulsa, OK 74136
  (918) 481-4044

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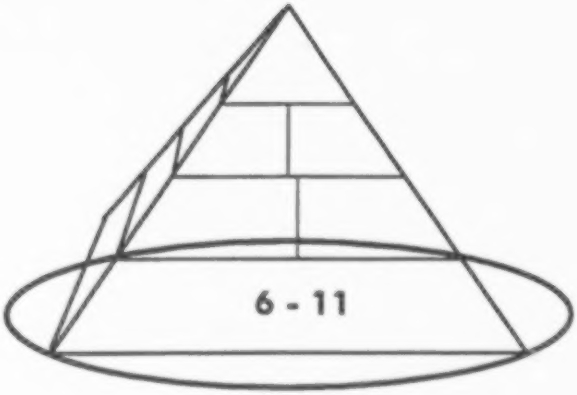
"ENERGY CHOICES"
GRADES 4-6

APPENDIX A
FOOD GROUP LISTS

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

Bread, Cereal, Rice, and Pasta Group



angel food cake
bagel
barley
biscuit
bread crumbs
breadsticks
bread stuffing
brown rice
buckwheat groats
bulgur
cake
cake or sugar cone
caramel corn
cereal
cheese balls
cheese curls
chow mein noodles
cookies
corn bread
corn meal
corn muffin
corn tortilla
couscous
crackers
croissant
crouton
cupcake
Danish pastry
doughnut
egg noodles
English muffin
farina
flour tortilla
french bread
fried corn chips
fried rice
graham cracker
granola
grits
hamburger bun
hot dog bun
Italian bread
matzo
melba toast
muffin
noodles
oatmeal
pancake
pasta
pie shell
pita bread
pizza crust
popcorn
pretzel
pumpernickel bread
ready-to-eat cereal
rice
rice cake
roll
rotini
rye bread
rye wafer
spaghetti
stuffing
taco shell
toaster pastry
Vienna bread
waffle
white bread
whole wheat bread
Yorkshire pudding

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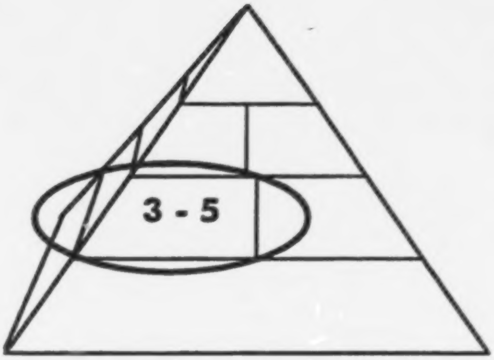
Vegetable Group



- alfalfa sprouts
- artichoke
- asparagus
- bamboo shoots
- beet greens
- beets
- bell pepper
- broccoli
- Brussels sprouts
- cabbage
- carrots
- cauliflower
- celery
- chicory
- coleslaw
- collards
- corn
- cucumber
- dandelion greens
- eggplant
- endive
- escarole
- french fries
- green beans
- green peas
- green pepper
- hominy
- iceberg lettuce
- Jerusalem artichoke
- kale
- kelp
- kohlrabi
- leaf lettuce
- lima beans
- lotus root
- lupine
- mushroom
- mustard greens
- okra
- onion
- parsnips
- pickles
- poi
- potato chips
- potatoes
- pumpkin
- purslane
- radicchio
- radish
- romaine lettuce
- rutabaga
- sauerkraut
- seaweed
- spinach
- squash
- succotash
- sweet potato
- Swiss chard
- taro
- tomatoes
- turnip greens
- turnips
- vegetable juice
- vegetable soup
- vinespinach
- water chestnuts
- watercress
- wax beans
- wax gourd
- yam
- zucchini

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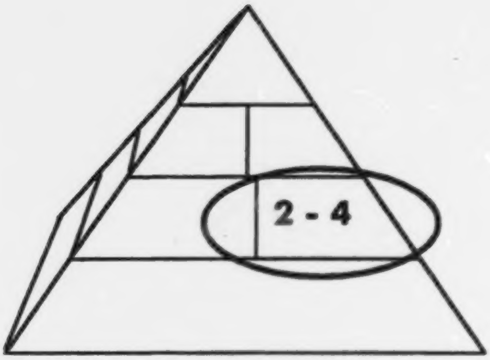
Fruit Group



- acerola
- apples
- applesauce
- apricot
- avocado
- banana
- banana chips
- blackberries
- blueberries
- boysenberries
- breadfruit
- cantaloupe
- carambola
- carissa
- casaba melon
- cherimoya
- cherries
- cider
- crabapples
- cranberries
- cranberry sauce
- currants
- dates
- elderberries
- figs
- fruit cocktail
- fruit juice
- fruit leathers
- gooseberries
- grapefruit
- grapes
- groundberries
- guava
- honeydew melon
- jackfruit
- java plum
- jicama
- jujube
- kiwifruit
- kumquat
- lemon
- lime
- loganberries
- longans
- lychees
- mammy apples
- mandarin oranges
- mangos
- melons
- mulberries
- nectarines
- oheloberries
- olives
- oranges
- papaya
- passion fruit
- paw paw
- peaches
- pear
- persimmon
- pie filling
- pineapple
- pitanga
- plantain
- plums
- pomegranate
- prickly pear
- prune
- pummelo
- quince
- raisins
- raspberries
- rhubarb
- rose apple
- roselle
- sapodilla
- sapote
- sowsop
- strawberries
- sugar apple
- tamarind
- tangerines
- ugli fruit
- watermelon

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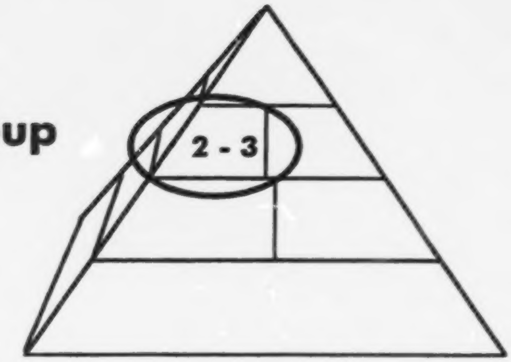
Milk, Yogurt, & Cheese Group



- acidophilus milk
- blue cheese
- brick cheese
- Brie cheese
- calcimilk
- Camembert cheese
- caraway cheese
- Cheddar cheese
- cheese imitations/substitutes
- cheese sauce
- cheese spread
- cheshire cheese
- chocolate milk
- cocoa/hot chocolate
- Colby cheese
- condensed milk
- cottage cheese
- custard
- dry milk
- Edam cheese
- evaporated milk
- evaporated skim milk
- farmer cheese
- feta cheese
- filled milk
- Fontina cheese
- gjetost cheese
- goat's milk
- Gouda cheese
- Gruyere cheese
- havarti cheese
- ice cream
- ice milk
- Indian buffalo milk
- lactose-reduced milk
- Limburger cheese
- lowfat (1% or 2%) chocolate milk
- lowfat buttermilk
- lowfat cottage cheese
- lowfat (1%) milk
- lowfat (2%) milk
- lowfat frozen yogurt
- lowfat fruited yogurt
- lowfat yogurt
- malted milk
- meunster cheese
- milk shake
- Monterey Jack cheese
- Mozzarella cheese
- Neufchatel cheese
- nonfat frozen yogurt
- nonfat fruited yogurt
- nonfat yogurt
- Parmesan cheese
- Port du Salut cheese
- processed cheese
- provolone cheese
- pudding
- rice pudding
- ricotta cheese
- Romano cheese
- Roquefort cheese
- sheep's milk
- skim buttermilk
- skim milk
- soy milk
- Swiss cheese
- tapioca pudding
- Tilsit cheese
- whole fat frozen yogurt
- whole fat fruited yogurt
- whole fat yogurt
- whole milk

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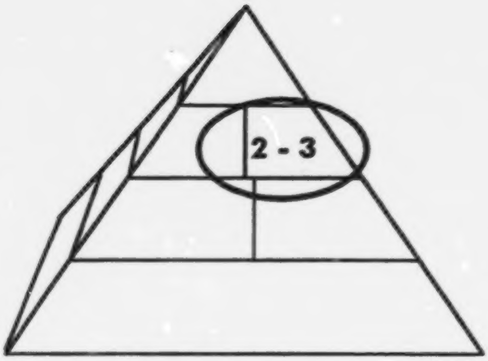
Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts Group



Meat, Poultry, Fish and Eggs
- beef
- Canadian bacon
- chicken
- chicken franks
- corned beef
- Cornish hen
- dried chipped beef
- duck
- egg
- egg substitute
- egg white
- egg yolk
- fresh, frozen, and canned fish and shellfish
- goose
- ground meat
- ham
- heart
- hot dogs
- kidney
- lamb
- liver
- luncheon meats
- pheasant
- pork chops
- pork loin
- pork roast
- pork tenderloin
- pot roast
- quail
- rabbit
- sausage
- spareribs
- squab (pigeon)
- squirrel
- steak
- sweetbreads
- turkey
- turkey franks
- veal
- venison

Dry Beans and Nuts
- bean dip
- black-eyed peas
- chickpeas
- coconut
- kidney beans
- lentils
- mung beans
- navy beans
- northern beans
- nuts
- peanut butter
- pinto beans
- refried beans
- seeds
- soybeans
- split peas
- tofu

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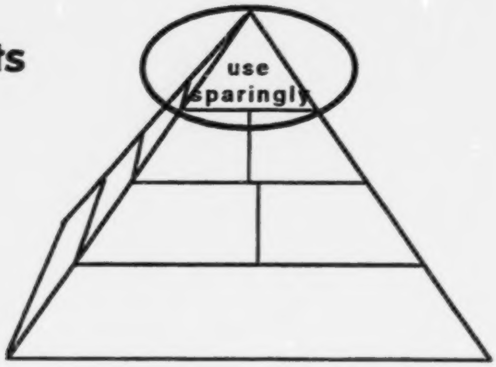
Fats, Oils, and Sweets Group



apple butter ▼
bacon ●
bacon bits ●
butter ●
candy ▼
caramel ▼●
chocolate bar ▼●
corn syrup ▼
cream ●
cream cheese ●
frosting ▼●
fruit drinks/ades/punches ▼
fruit sorbet ▼
fudge ▼●
gelatin dessert ▼
honey ▼
jam ▼
jelly ▼
lard ●
margarine ●
marmalade ▼
marshmallows ▼
mayonnaise ●
molasses ▼
popsicles ▼
pork rinds ●
salad dressing ●
sherbet ▼
shortening ●
soft drinks ▼
sour cream ●
sugar ▼
syrups ▼
vegetable oil ●
whipping cream ●

Foods with a ● symbol are high in fat.
Foods with a ▼ symbol are high in added sugar.

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KINDERGARTEN TO GRADE 6

RESOURCE LIST

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

RESOURCE LIST

CHILDREN'S BOOKS

Amazing Potato Book, The by Paulette Bourgeois
This has fun projects for home or school, all of which focus around the potato. Games and activities are just part of this book. Excellent background material is presented for storytelling.

Blue Potatoes, Orange Tomatoes by Rosalind Creasy
Describes how to plant and grow a variety of colorful vegetables, including red corn, yellow watermelons, and multicolored radishes.
Appropriate for grades 4-6.

Book of Vegetables, A by Harriet L. Sobol
The photographs show vegetables in the garden. The text is written simply and in large print. Fourteen vegetables are presented. Tomato, beans, cucumbers, peppers, and zucchini are listed as vegetables, not fruit. This might be a nice book to introduce the seed definition and some common discrepancies.

Bread, Bread, Bread by Ann Morris
Clear photographs show bread from all over the world, and the people who make and eat it.

Carrot Seed, The by Ruth Krauss
This book is old but and still enjoyed by children. It depicts the determination of a young boy who believes his carrot seed will grow into carrots despite what his family members say. The carrot does finally grow.

Cloudy With a Chance of Meatballs by Judi Barrett
The town of Chewandswallow, with food dropping from the sky like rain, was peaceful until giant meatballs and a tomato tornado forced the people to flee. Students, grades 2 and 3 will enjoy this exciting adventure.

Danilo the Fruit Man by Amy Valens
Danilo, a fruit-seller in Sicily, leads a peaceful and contented life until he finds unusual trees with magical fruit. This vividly told story will have students imaginations, from kindergarten through third grade, flying!

Day the Teacher Went Bananas, The by James Howe
Your students will enjoy the humor of the mix-up between a gorilla who goes to school, and a teacher who goes to the zoo.

Eating Fractions by Bruce Mcmillan
Food is cut into halves, thirds and quarters to illustrate how parts make a whole.
Appropriate for grades K-1.

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Eating the Alphabet: Fruits and Vegetables from A to Z
by Lois Ehlert
Apple to Zucchini fruits and vegetables are illustrated to display a visually pleasing variety of colorful food choices. Unusual fruits and vegetables like jicama, kumquat, kohlrabi, okra, and radicchio are illustrated.

Edible Pyramid Good Eating Every Day, The by Loreen Leedy
Come into The Edible Pyramid, a restaurant that serves all kinds of delicious and nutritious meals, all based on the Food Guide Pyramid. Customers learn how many servings from the different food groups to have every day. Grades K-3.

Everybody Cooks Rice by Norah Dooley
A mother sends her daughter out to find her younger brother and bring him home for dinner. She discovers everyone in their multiethnic neighborhood is cooking rice, in a variety of ways, for dinner. The range includes black-eyed peas and rice from Barbados, Puerto Rican rice cooked in turmeric, Vietnamese rice with nuoc cham, and creole style Haitian rice with hot peppers.

Fiber by Jane Inglis
Identifies what dietary fiber is and discusses its importance and its sources. Includes recipes and related activities. Teachers may incorporate this information into lessons for grades 4-6.

Freddie's Spaghetti by Charlotte Doyle
Appropriate for students grades 1 and 2, this "dinner" story focuses on dining and the art of patience.

Fruit and Vegetable Man, A by Roni Schotter
Sun Ho first watches the artistic fruit and vegetable man, Ruby Rubenstein, at work. Soon, Sun Ho begins helping Ruby in the store and offers something new: bean sprouts. This is a colorful story for grades 2 and 3.

Fun With Fruits and Vegetables (Dole Food Company, Inc., see Teacher Resources)
This cookbook for kids illustrates great activities that incorporate fruits and vegetables into a child's diet. Students of all ages will enjoy the "cooking experiments" in this book.

Garden Alphabet, A by Isabel Wilner
A colorful alphabet book that contains rhymes about gardening. The print is large and clear.

Germs make Me Sick , Let's-Read-and-Find-Out-Science Book.
This story explains how bacteria and viruses effect the human body and how our bodies fight against them.

Growing Vegetable Soup by Lois Ehlert
A colorful book that introduces the tools, seeds, water, and sunshine necessary to grow a vegetable garden. The vegetables grow and are used to prepare soup.

Happy Veggies by Oda Mayumi
This brief story celebrates the growth of vegetables in a garden through the flowing brush stroke paintings of an internationally renowned artist.

How a Seed Grows by Helen J. Jordan
Uses observations of bean seeds planted in eggshells to demonstrate the growth of seeds into plants.

How do Apples Grow? by Betsy Maestro
Describes the life cycle of an apple from its initial appearance as a spring bud to that point in time when it becomes a fully ripe fruit.

Jamberry by Bruce Degen
This is a factual story in rhyme of a boy and a bear that have delicious adventures in the magical world of berryland. You may find it fun to finish up the reading with a discussion of how to make jam and jelly out of berries. The Jamberry audio tape, available through Scholastic, Inc., is a fun addition to any audio library.

Milk from Cow to Carton by Aliki
Briefly describes how a cow produces milk, how the milk is processed in a dairy, and the way various other dairy products are made from milk.

Milk Makers, The by Gail Gibbons
Explains how cows produce milk and how it is processed before being delivered to stores.

More Spaghetti I Say by Rita Goldman Gelman
The monkey in this rhymed story is too busy eating spaghetti to play with her friend Freddie. Story is for beginning level readers.

Pasta Factory by Hana Machotka
Photographs and text give the account of a class taking a trip through the Tutta Pasta Factory in New Jersey. Names of pasta shapes are explained, and the processing of pasta is described.

Pierrot's ABC Garden by Anita Lobel
Pierrot brings his friend vegetables, fruits and other items from A - Z. Grades K - 2.

Pizzas & Punk Potatoes by Arielle Rosin
Interesting background on foods with recipes and clever presentation ideas (e.g., pizza in the shape of stars, apples as fruit baskets, etc.). Chapters are short and address eggs, pizzas, potatoes, apples, crepes and milkshakes.

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Proteins by Jane Inglis
Describes the different kinds of proteins, where they are found, and their importance to human growth and nutrition. Includes activities and recipes. Grades 4-6.

Stone Soup by John Stewig
A clever lad (old soldier) in need of a meal shows villagers how to make a meal with a stone. This story has been re-written by various authors, each adding his or her own twist.

Vegetable Garden by Douglas Florian
This is a simple word book for the early reader. The use of rhyme is effective and the planting of the garden allows for easy curriculum integration. This is a great book to read at harvest time.

Vegetable Show, The by Laurene Krasny Brown
Presents information about nutrition and vegetables, by means of pictures of singing, dancing vegetable characters.

Vegetables Go To Bed, The by Christopher King
The tomatoes, carrots, spinach plants, and other vegetables in the garden prepare to go to bed, each in its own fashion. A good story to include when students are learning about gardening.

Very Hungry Caterpillar, The by Eric Carle
The story illustrates how a caterpillar grows big and prepares to become a butterfly. This concept helps to clarify how food is needed to build young bodies. This story may lead to a discussion of how food fuels the growth of living things.

Victory Garden Kids' Book: A Beginner's Guide to Growing Vegetables, Fruits, and Flowers, The by Marjorie Waters
This book will inspire you and your school to start and keep a vegetable garden.

Your First Garden Book by Marc Brown
This book suggests projects for beginning gardeners on how to sprout seeds, turn soil, plant and care for the growth of plants.

TEACHER REFERENCES

Bowes & Church's Food Values of Portions Commonly Used
Sixteenth Edition, by Jean A.T. Pennington
This book supplies data on the nutritional values of foods in a format that facilitates quick and easy reference.

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Fast Food Facts by Marion J. Franz
This book, produced by the International Diabetes Center, gives an extensive evaluation of fast food restaurants and food products and how they fit into a healthy lifestyle. Cost of the book is $6.95 and may be available at your local bookstore. (ISBN 0-937721-67-0) For more information, write to DCI Publishing, P.O. Box 739, Wayzata, MN 55391.

Fast Food Guide by the Center for Science in the Public Interest
This book provides a listing of products' nutritional values from popular fast food restaurants. Foods are broken down and analyzed for nutrient content. Cost of the book is $7.95. For information, call (202)332-9110 or check your local bookstore.

Games and Great Ideas
A Guide for Elementary School Physical Educators and Classroom Teachers, edited by Rhonda L. Clements. An excellent resource for getting children to move, the table of contents includes: Theoretical Considerations for Teaching Games, An interdisciplinary Approach to Games, Games Reflecting Different Cultures, Developmentally Appropriate Behavior through Games, and Fitness and Leisure through Games and Sport.

How to Teach Nutrition to Kids by Connie Liakos Evers, M.S., R.D.
An integrated, creative approach to Nutrition Education for children, ages 6-10, this book is packed with nutrition education activities and strategies that are kid-tested and teacher-endorsed. Divided by subject, this resource effectively integrates nutrition into the classroom, cafeteria, and home environments.

Reviving Ophelia: Saving the Selves of Adolescent Girls by Mary Pipher
This vibrant and insightful account explores the everyday dangers of being young and female, including body image disturbances and eating disorders, and how adults can help.

Schoolgirls: Young Women, Self-Esteem, and the Confidence Gap by Peggy Orenstein
Based on her investigation of two American middle schools, journalist Peggy Orenstein reports on the problems facing young schoolgirls today. She finds that despite advances in women's roles, many American girls still experience low self-esteem and self-censorship.

Second Helpings-Books and Activities About Food by Jan Irving and Robin Curie
The FUN activities in this book, designed for primary through middle school students, are generated around the topic of food. This book, intended as a resource book for educators, provides a listing of books focused around various themes, divided into eight chapters. Each chapter contains an introduction to the theme, a focus book, activities that relate to the focus book, a readers theatre script, activities related to the chapter topic, a starter kit, and recipes.

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Funded by a grant from USDA, NET Program.

TEACHER RESOURCES

COMPUTER SOFTWARE

5-A-Day Adventures

Dole Food Company, Inc
Nutrition Program
155 Bovet, Suite 476
San Mateo, CA 94402
1-800-766-7201
Fax: (415) 570-5250

Use school letterhead to write or fax a request for a free copy of this program. The interactive, multimedia program includes a Fun with Fruits and Vegetables Cookbook for Kids, fruit and vegetable stickers, and a chart for tracking fruit and vegetable consumption. Include your school's name, address, phone number, teacher's name making the request. Up to 25 copies, free of charge, allowed. Both IBM and Macintosh compatible.

Sugar Science: Photosynthesis to Food

The Sugar Association, Inc.
1101 15th Street, N.W., Suite 600
Washington, DC 20005
(202)785-1122
Fax: (202)785-5019
Cost: $39.95

This curriculum is an effective teaching tool due to the computer software package which explains the processes of photosynthesis and respiration as well as the role of plants in the food chain. This interactive program, accompanied by a manual, gives students, grades 6-9, the opportunity to form hypotheses, investigate, and conduct experiments. The students work with experimental variables and see how products are affected through different variables.

CURRICULA

All About Apples

This educational packet is available at a cost of $9.50 from Unique Country Products. For more information, contact (413)572-0397.

Delicious Decisions: Food Choices to Grow on!

Dairy Council of Wisconsin
999 Oakmont Plaza Dr, Suite 510
Westmont, IL 60559
1-800-325-9121

Integrated nutrition education for K-6. Includes the Food Guide Pyramid, a set of food picture card photographs, educator's guide, lesson plans, blackline masters, and a **poster of the Food Guide Pyramid**. Cost is $14.50 plus S&H per set and $1.25 plus S&H for the poster.

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Glo-Germ Science Kit

This science kit helps children visualize "germs on hands." The kit includes various activities that include the use of a special spray or powder and a UV light to illuminate microbes. For information, contact: Brevis Corporation,1-800-383-3377.

Healthy Choices for Kids

The Growers of Washington State Apples
c/o Healthy Choices for Kids
Nutrition and activity Education Program
P.O. Box 550
Wenatchee, Washington 98807-0550
(509) 663-9600
Fax: (509) 662-5824

This program consists of four chapters, each focusing on one or more of the dietary guidelines. The curricula supports the "5 A Day-for Better Health!" campaign and the USDA's Food Guide Pyramid.

Mid-LINC
Middle Level Interdisciplinary Curriculum

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870 Cost:$98.00 plus $8.00 S&H

Contact the Penn State Nutrition Center for ordering details.
Three units are included in this interdisciplinary curriculum: Prehistoric vs. Modern Diet, Growing to the Max, and Food-Environment Connection.

Pyramid Packet

Penn State Nutrition Center
5 Henderson Building
University Park, PA 16802
814-865-6323
Fax 814-865-5870

Packet contains transparencies, reference sheets, brochures, a poster, food cards, and teaching tips for the pyramid, especially for the hard to place foods and sparingly foods.
Cost is $25.00 plus $4.00 S&H
PA residents must send tax exemption or add 6% sales tax.

PUBLICATIONS

Nutrition Accuracy in Popular Magazines (1992-1994)

A Special Report published by The American Council on Science and Health, this publication lists various popular magazines and evaluates the accuracy of the nutritional information presented. Individual copies are available at a cost of $3.85. Reduced prices for 10 or more copies are also available. For ordering information, contact The

American Council on Science and Health, 1995 Broadway, 2nd floor, New York, NY 10023-5860, (212)362-7044 or fax (212)362-4919.

FDA Consumer
Published by the FDA, this special report focuses on food labeling and how to interpret information provided on food labels. For ordering information, contact (301) 443-3220.

Gimmie 5 Kids' Tips
This brochure gives tips to parents on how to get children to eat more fruit and vegetables. Available free from: International Apple Institute, 6707 Old Dominion Drive, Suite 320, McLean, VA 22101 (703)443-8850

VIDEOS

E.A.G.A.H.B.E.D. (Eat a Good and Healthy Breakfast Every Day)
This entertaining yet educational video, targeted for first through fifth grade students, focuses on teaching children how breakfast helps them learn. Video is accompanied by a 12-page teacher manual. (See Dairy Council Group Resource listing for catalog ordering information.)

Janey Junkfood's Fresh Adventure
Foodplay
221 Pine Street
Northampton, MA
01060
1-800-FOODPLAY

Make Mine Milk produced by the Dairy Council (See Group Resources Listing)
This is a fast-paced, entertaining video that teaches elementary kids where milk comes from, how it is processed, and how it contributes to a nutritious diet. This 27 minute video was developed in eleven interdisciplinary segments and includes a leader guide.

CATALOGS

The Gürze 1996 Eating Disorders Bookshelf Catalog
Gürze Books
P.O. Box 2238
Carlsbad, CA 92018
1-800-756-7533
This catalog displays a variety of materials related to eating disorders.

Lowfat Lifeline- Health Education Resources Catalog
Valerie Parker, M.S.
P.O. Box 1889
Port Townsend, WA 98368
360-379-9724
Fax 360-385-6835

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NASCO Nutrition Teaching Aids Catalog and **Nasco Science Catalog**
901 Janesville Avenue
P.O. Box 901
Fort Atkinson, WI 53538-0901
1-800-558-9595
Fax 414-563-8296
A comprehensive catalog featuring teaching aids for hands on learning.

Nutrition Counseling and Education Services (NCES)
1904 E. 123rd St.
Olathe, KS 66061
1-800-445-5653
This catalog displays a variety of nutrition education materials.

The Pennsylvania State Nutrition Center Catalog of Nutrition Education Materials
Provides a listing of materials developed by the Nutrition Center. Materials range from educational brochures to extensive curriculum packets. For a free catalog, contact: The Penn State Nutrition Center, 5 Henderson Building, University Park, PA 16802. (814) 865-6323

OTHER

Guide to Good Eating
your local Dairy Council or
Order Department
National Dairy Council
10255 W. Higgins Rd, Suite 900
Rosemont, IL 60018-5616
Miniature poster of the five food groups is available for $1.25, plus S&H poster- $3.00, plus S&H

GROUP RESOURCES

Many of these organizations provide Food Guide Pyramid posters.

Consumer Information Center
Department 159-Y
Pueblo, CO 81009
Ask for the Consumer Information Catalog, a catalog of free and low cost federal publications of consumer interest. There are useful **Food Guide Pyramid** resources available, including large **posters** and booklets.

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Florida Department of Citrus
PO Box 148
Lakeland, FL 33802
(941) 499-2500
The Florida Department of Citrus has a wide variety of nutrition education materials including **Food Guide Pyramid posters**. Grades K-12. Send for a free catalog of their products.

National Dairy Council
10255 West Higgins Road, Suite 900
Rosemont, IL 60018-4233
(708) 803-2000, ext. 220
The National Dairy Council provides a **Daily Food Guide Pyramid poster** for $3.00 as well as a free catalog of their nutrition education materials. Contact your state Dairy Council or Associated Milk Producers Office for other resources.

National Cattleman's Beef Association
Education Department
444 N. Michigan Avenue
Chicago, IL 60611
Use school letterhead to request a catalogue which lists a wide variety of elementary curriculum kits, many free of charge.
Food Guide Pyramid poster (1.50)

Sunkist Growers, Inc.
PO Box 7888
Van Nuys, CA 91409
(818) 986-4800
Sunkist Growers, Inc. offers free of charge the "Orbiting Oranges Kit." Included is one "Orbiting Oranges" poster, teacher information and 25 activity books. Grades 3-6. This kit supports the "5 A Day - for Better Health!" campaign.

USA Rice Council
P.O. Box 22802
Houston, TX 77027
(713)270-6699
Contact this organization for various activities appropriate for elementary students. The following activity is provided, free of charge: "Teaching With Rice the Fun Way."

Washington State Dairy Council
4201-198th Street, SW Suite 102
Lynnwood, WA 98036
They offer bright, colorful stickers of the Food Guide Pyramid (English or Spanish). $3.00 plus S&H per 100 stickers. For more information or a catalog call:
206-744-1616 (Toll Free Fax-1-800-470-1222)

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GARDENING

Children's Seed Program
Brooklyn Botanic Garden
1000 Washington Avenue
Brooklyn, NY 1122501099
The program offers reasonably priced seeds and gardening supplies for children and beginning gardeners.

Growlab
National Gardening Association
180 Flynn Avenue
Burlington, VT 05401
1-800-538-7476
A comprehensive, science curriculum for K-8, including indoor garden equipment, books, posters, videos, and curricula.

Let's Get Growing!
1900 Commercial Way
Santa Cruz, CA 95065
Curricula, kits, and garden-based science supplies are available through this catalog.

GAMES

Pyramid Power
Cooperative Extension in Lancaster County
444 Cherrycreek Road
Lincoln, NE 68528-1507
This is a nutrition game that resembles bingo. It reinforces information illustrated in the Food Guide Pyramid.

Harvest Time
Harvest Time is a board game for children ages four to seven. The object is to try to pick all the vegetables. The cost is $17.00. For more information, contact Animal Town, PO Box 485, Healdsburg, CA 95448, 1-800-445-8642.

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KINDERGARTEN TO GRADE 6

INDEX

every day
lots of ways
©

An Interdisciplinary
Nutrition Curriculum for
Kindergarten - Sixth Grade

INDEX

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III. Food and Nutrients
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"5 A DAY FOR BETTER HEALTH"

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